THE MAGAZINE OF

Standards

The First Eli Whitney Memorial Lecture (page 97)

April 1957

THE MAGAZINE OF
Standards

April, 1957 Volume 28, No. 4

IN THIS ISSUE

Features

Heritage and Growing Abundance
The First Eli Whitney Memorial Lecture. By Louis F. Polk 97
The New Safety Code for Portable Metal Ladders
By R. L. Lloyd 104
Safety Code for Fixed Ladders Now Available
By Robert L. Moore 105
Engineering Materials Studied by ASTM Technical Committees 107
Are These Cases Work Injuries? 110

News

Your Nominations Are Invited for the Standards Medal and the Howard Coonley Medal 116
News Briefs 117
International Electrotechnical Commission Meets in Moscow 118
Gaillard Seminar on Industrial Standardization 119
New Project Requested for Processing Polio Vaccine 121

Departments

What Is Your Question? 112
From Other Countries 113
Books 115
American Standards Under Way. Status as of March 27, 1957 120
What's New on American Standards Projects 122
Standards Outlook. By Leo B. Moore 123

Published monthly by the
American Standards Association, Incorporated
70 East Forty-fifth Street, New York 17, N. Y.

Officers
H. Thomas Hallowell, Jr, *President*
Vice Admiral G. F. Hussey, Jr, USN (Ret), *Managing Director and Secretary*
Cyril Ainsworth, *Technical Director and Assistant Secretary*

Ruth E. Mason, *Editor* Sheila Dressner, *Art and Production Editor*

Single copy 60¢. $7.00 per year (foreign $8.00). Schools and libraries $5.00 (foreign $6.00). This publication is indexed in the Engineering Index and the Industrial Arts Index. Re-entered as second class matter Jan. 25, 1954, at the Post Office, New York, N. Y., under the Act of March 3, 1879.
Opinions expressed by authors in THE MAGAZINE OF STANDARDS *are not necessarily those of the American Standards Association.*

MARGINAL NOTES

Interesting Meetings in 1957—

• Company problems and experiences with standards, their use, organization of company standards work, and how to improve company profits with standards, will be discussed at the Spring Meeting of the Company Member Conference, May 27 and 28. The meeting is being held at Hartford, Connecticut. Headquarters — The Hotel Statler.

For details of the program, write the American Standards Association.

• Plans are progressing rapidly for the Eighth National Conference on Standards, and the Thirty-Ninth Annual Meeting of the American Standards Association. Theme of the Conference is Standards — Key to Progress and Profits.

Never before has the Conference been held on the West Coast. This year, it will be in San Francisco, at the well-known St. Francis Hotel, November 13-15.

The program is being developed by a broadly representative committee, under the chairmanship of J. R. Townsend, Sandia Corporation, Albuquerque, New Mexico. Plans call for sessions on government standards materials handling; electronics purchasing, nuclear energy, and technical writing and communication, among others.

The Howard Coonley Medal and the Standards Medal will be presented at the Awards Dinner.

For the first time at a National Conference on Standards, a program of sightseeing, shopping, and other special events is being arranged for the ladies.

Watch for the preliminary program of the Conference in the May issue of THE MAGAZINE OF STANDARDS.

• April is the month that the American Standards Association's Member-Bodies, Board of Directors,

Standards Council, and Standards Boards meet for a thorough review and analysis of ASA's activities, procedures, and operations. The meeting is at the Hotel Biltmore, in New York, for three days — April 24-27.

• The Standards Engineers Society is holding its Sixth Annual Meeting in New York City at the Hotel Commodore, September 23, 24, and 25. Theme—Standardization, Economy Through Application.

The Front Cover—

Photo: The Bettmann Archive

Eli Whitney, the man who started the use of standardization in the United States, is pictured on this month's cover. It is a privilege to publish the first Eli Whitney Memorial Lecture, honoring Whitney, in THE MAGAZINE OF STANDARDS this month. It is also a privilege to honor Louis Polk, the first Eli Whitney Lecturer. The American Society of Tool Engineers, which established the annual Lecture, plans each year to award the honor of delivering the Lecture to an outstanding contributor to industrial progress who has "demonstrated superiority in the quality of achievement and caliber of professional service in applying knowledge of the science of tool engineering to the needs of industry." Mr Polk is a good selection to start the series.

This Month's Standards Personality

LOUIS POLK, selected as the first Eli Whitney Memorial Lecturer by the American Society of Tool Engineers, has long been an admirer of Eli Whitney.

As president of The Sheffield Corporation, known throughout the world for its gages and instruments for precision measurement, Mr Polk conceived the idea and was responsible for building the company's new Eli Whitney Metrology Laboratory at Dayton, Ohio. Dr A. V. Astin, director of the National Bureau of Standards, has called this laboratory a great help in relieving "the tremendous burden of dimensional testing service which is now needed by industry."

Mr Polk himself views his work as a key to progress. In his own words, "Mankind continues to prove that industrial progress has been paced by man's increasing ability to machine and divide the inch and meter finer and finer."

Awards and commendations presented at the silver anniversary meeting of the American Society of Tool Engineers, March 23-27, testified to Mr Polk's contributions to industrial development. ASTE's Engineering Citation Gold Medal Award cited him as "dedicated leader in the advancement of ultra-precision dimensional measurement and control and a benefactor to industry in helping to maintain uniform standards."

The Society's Eli Whitney Memorial Lecture plaque was presented "in recognition of his demonstrated superiority in the quality of his achievements and caliber of his professional service to the tool engineering profession, to industry, and the American standard of living."

The Southern Association of Science and Industry also recognized his "personal leadership in helping to preserve the rich heritage of Eli Whitney." The commendation also noted the Association's appreciation of the Sheffield Corporation's development of the "Micronaire" (R) gaging device, a standard instrument used to measure cotton fiber fineness.

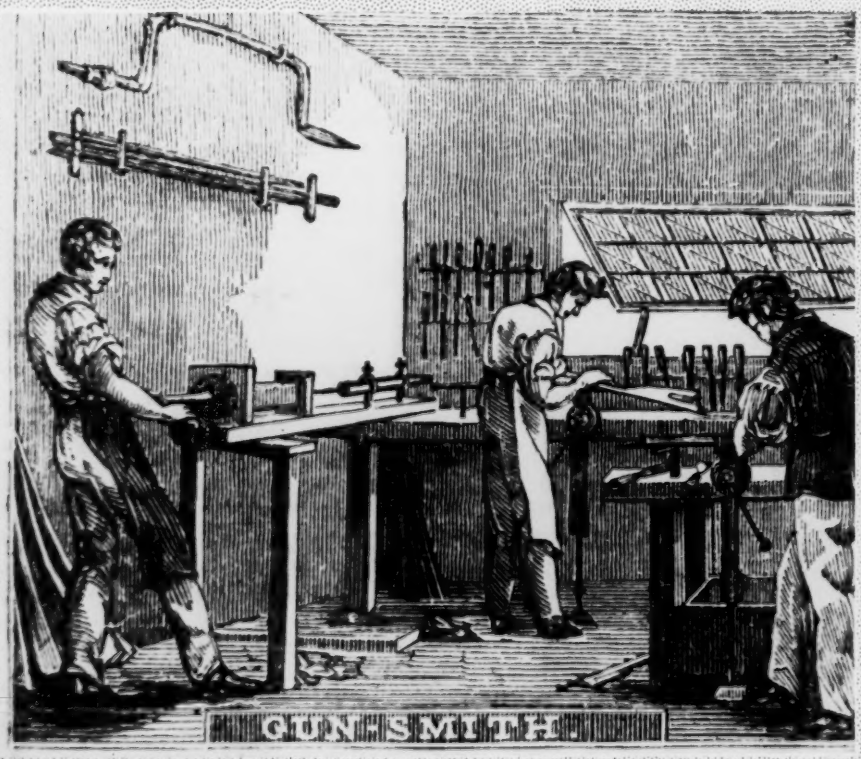
Mr Polk foresees as one of 1957's most significant industrial developments a greatly increased use of automatic "size control" systems in the metalworking industries. "In many cases," he says, "the job of inspecting and measuring dimensions in high-speed automated plants has grown beyond the range of human capability." He believes that automatic gaging will increasingly become the fundamental control factor insuring efficient machine tool performance, higher quality, and lower operating costs in metalworking.

A man of great energy and enthusiasm, Mr Polk is the immediate past president of the National Machine Tool Builders' Association, a director and vice-president of the American Ordnance Association and chairman of its Dimensional Standards and Metrology Division; and a director of the American Society of Mechanical Engineers. He is also serving on the ASME executive committee and is chairman of its Board on Codes and Standards. He has participated in the work of the American Society of Tool Engineers, the Society of Automotive Engineers, the American Standards Association, and the American Society for Quality Control.

HERITAGE AND GROWING ABUNDANCE

by Louis F. Polk

Louis Polk is shown here with one of the Eli Whitney muskets produced in 1799. Bronze plaque honors Whitney at Eli Whitney Metrology Laboratory opened by Sheffield Corporation last year.



The Bettmann Archive

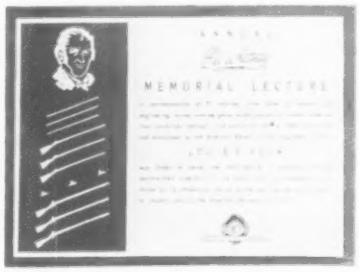
An early 19th Century Shop for making small firearms, rifles, pistols, etc. Far right, today, mass-production machine drills entire oil system in an automobile in one continuous operation.

The First Eli Whitney Memorial Lecture

In honor of the father of standardization and of mass-production methods, including modern tool engineering, the American Society of Tool Engineers has instituted a series of annual Eli Whitney Memorial Lectures. The first lecture was delivered during the Society's Twenty-fifth Anniversary meeting at Houston, Texas, March 23-28.

"Though it is well-known that Eli Whitney invented the cotton gin, which changed the entire economic complexion of the South in the early 1800's, he was also responsible for the much more significant achievement of being the first to introduce the use of standardized, interchangeable parts to manufacture a finished product on a mass-production basis," the Society pointed out in announcing the memorial lectures.

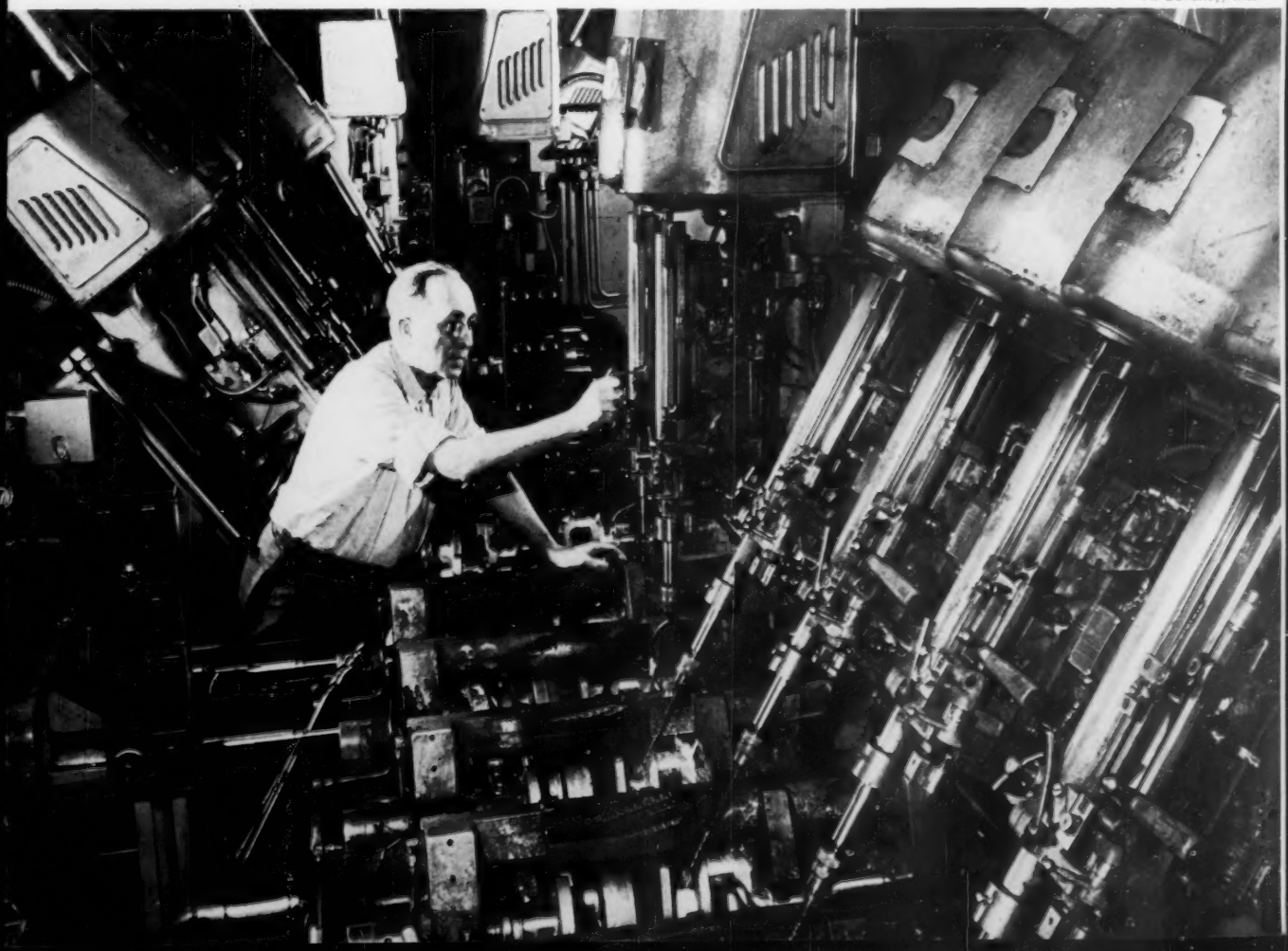
Louis F. Polk, president of the Sheffield Corporation and vice-president, director, and group executive of the Bendix Aviation Corporation, was first to be honored as Eli Whitney Lecturer. He was selected to deliver the first Memorial Lecture because he has "demonstrated superiority in the quality of achievement and caliber of professional service in applying knowledge of the science of tool engineering to the needs of industry."



Plaque presented to Louis F. Polk, first lecturer in the ASTE's new series honoring Eli Whitney, "whose inventive genius made possible our modern American mass-production methods."

THE story of Eli Whitney is that of the spiritual as well as of material things. He was a man of character and spirit. But, it is not my intent today to go into detail extolling his personal virtues of character, for they have been well documented and reported upon. Moreover, this mature profession long ago recognized that the good life is certainly made up broadly of two segments—one being that of the spiritual, which covers our hearts, our minds, our characters, and the second being closely aligned to the material essentials necessary to our daily livelihood and existence. We unqualifiedly realize that without character and a proper

A. Devaney, Inc.



background of the spiritual, the world is lost—all is lost. And so, unreservedly endorsing that concept, we also recognize that our own work is of a practical, realistic nature, dealing largely with creating greater productivity in the manufacture of materials, products, and services. It is in these terms that I wish to call attention to the rich, Eli Whitney heritage of our profession which holds such a dynamic and challenging promise. This comprehension would encourage creativeness and discourage those imitators who fail to credit or disregard the originator.

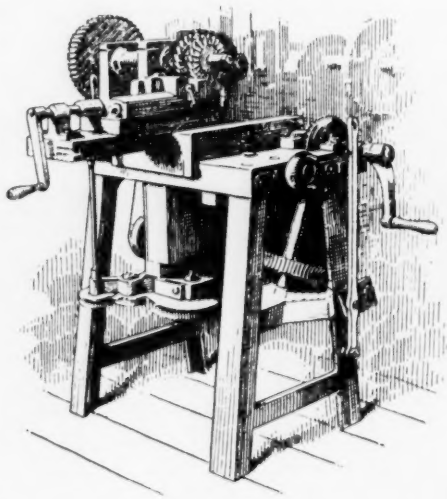
The Eli Whitney story calls attention to the maturity and the confident but deserved self respect of this profession. It outlines the principle of ever-improving productivity as the only hope of solving the world's material, and some of its spiritual, problems. Many of the companies represented here have done their best to follow in both the spiritual and practical paths so truly marked by Eli Whitney.

At Sheffield, we have tried to make a lasting contribution to his memory by naming our new Dayton metrology and measurement research laboratory in his honor. It is strictly coincidental that Sheffield engineers fostered an instrument which is the standard for measuring the fineness of cotton fiber and is thus helping the U. S. cotton textile industry, which Whitney virtually revolutionized at its source.

For all tool engineers, the Eli Whitney story has meanings and implications that are deeply imbedded in our professional consciousness. In respecting him as the pioneering ancestor of all modern tool engineers our profession is modestly aware of the mutual respect amongst all our members as we gratefully acknowledge not only the assistance of each other, but the help we constantly receive from men in associated responsibilities at all levels in our country's small and large manufacturing organizations.

ELI WHITNEY'S sixty years of almost single-handed intensive struggles and efforts built the foundation of the American industrial revolution. He established the traditions of precision and productivity by which we live, work, and advance today. It is particularly fitting, then, that our profession institute a series of lectures in his honor as the father of present-day U. S. mass production. What Pasteur and Lister were to medicine, what Edison and Steinmetz were to electricity, what Bell, Marconi, and DeForrest were to communications —Eli Whitney was to the breath-taking basic history of American men and machines. His fame endures among the intrepid trail-blazers who ". . . began making a great industrial nation out of three-million square miles of wilderness nearly 160 years ago,"[1] as is recorded in Roger Burlingame's dramatic book *Machines That Built America*. His story is an inspiring chronicle of an ingenious and courageous man whose inventions and enterprise helped build America.

This ancestor of our profession lived in a unique and epic adventure of the true pathfinder, blessed with an extraordinary combination of courage, fortitude, and creativeness. There are not too many informational sources about this early ancestry but one of those I found most definitive was the biography, *The World of Eli Whitney*, by Jeannette Mirsky and Allan Nevins. In appraising Whitney's early problems, these writers are aware that the way of a pioneer enterpriser or a competent inventor, like the way of a successful explorer or missionary, is sometimes lonely as well as precarious. If he is ahead of his time he has one kind of problem, trying to hurry enlightenment, understanding, and appreciation to catch up with him. On the other hand, if his efforts find ready acceptance he may find it difficult, because of the rapid encroachment of unscrupulous imitators, to take all the proper steps necessary to safeguard and preserve his rights and earn the rewards



An original Whitney milling machine, which was found in one of the old Whitney factory buildings in 1900 after the Whitney company had been taken over by the Winchester Repeating Arms Company.

which his creativeness deserves. While Whitney's factories lasted long enough after his death to become part of the Winchester Repeating Arms Company, seldom has the life of a single man so dramatically illustrated both the hazards and problems, the opportunities and rewards, which face the creative. Like many prophets, he was not always honored or rewarded in his own time and place. The great tragedy of his life was that many of those who needed and welcomed his first invention, the cotton gin, reaped its mass benefits by mass imita-

tion and mass expropriation. His legal and individual rights were ignored, forcing him to fight for them in the courts.

He described his situation after the collapse of his cotton ginning business in these weary words, "Bankruptcy and ruin were constantly staring me in the face and disappointment tripped me every step I attempted to take. I was miserable, loaded with debt and without resources and without any business that would ever furnish me with a support. I knew not which way to turn." This was just five years after the granting of his cotton gin patent.

The really great achievement of his life was the ability to rise above and rally, again and again, over the disastrous trespasses on his rights and to press forward to new and greater heights. That lifetime example and principle gives us an opportunity to revitalize our own appreciation of the importance of our own daily work and the constant dynamic need for further achievements today, while at the same time, advancing public understanding of the contributions made by those who pioneer constructive change. It is up to our profession to make certain that our school children not only learn to know Eli Whitney as the inventor of the cotton gin but, also, for his greater significant contribution in establishing the "well springs" of our modern industrial heritage.

Modern historians are taking more searching looks at his life and recording and interpreting his accomplishments in broad and dramatic terms to give us the full measure of the man and his genius. Our Society's series of lectures then not only can, but will, do much, I am sure, to add to the rightful stature of Eli Whitney and gain an increased awareness of his contribution and continuing tradition. Gerald Johnson,* a wise observer and historian of the American Scene, has said that Americans need to be reminded and reawakened every so often by these words, "What a difficult and dangerous thing it is, to be an American, for the American doctrine was devised by brave men for brave men." This is a practical view and should find fertile ground in our practical profession, for it seeks to remind us that contributing to human progress can sometimes be a difficult and monumental undertaking for the best of men.

TO appraise Eli Whitney, it is essential first to examine the background of the era that produced him. He was born in Westboro, Massachusetts, on the 8th day of December, 1765, the first-born of a respected farm couple, descended from families which came from England and settled on farms near Boston. He showed an early gift for creating things in the farm shop, as well as a manual dexterity and an adventuresome spirit of inquiry. His sister writes that as a boy he displayed the progressive attitudes and plans that mark the born enterpriser and manufacturer, and I quote her, "In the time of the Revolutionary War, nails commanding a high price, Eli proposed having a forge in the shop and making nails. Father consented. The forge was put up and Eli made nails, did his day's work and gained time to make tools for his own use, put in penknife blades and do many little jobs for other people." Such were the teen-age years of Eli Whitney, years that marked the arrival of this new breed of man on the then limited American horizon.

At the age of twelve, his sister recalls, "He was remarkable for thinking and acting for himself. He had more general information than men who were considered of first standing in the country and in whatever he undertook he seemed to have the sagacity to perceive the consequences."

There was a hidden, but nevertheless pressing, urgency in America then that demanded the special kind of perceptive vision Whitney was displaying. Through the Revolutionary War years, which were his early teens, the flow of manufactured goods from England came to a stop and people lived under appalling conditions of scarcity and austerity in terms we could hardly visualize today. And when freedom was won the new nation still staggered under a heavy load of debts. Speculation and inflation robbed people of faith, money, and high hopes. Thus, the expansion of commerce and great new economic power for the United States were slow to be realized. There were sharp differences of opinion among our national leaders and many firmly believed our only future lay in using the land to produce agricultural commodities that could be supplied, more readily by the United States than any other nation, for European markets. Only a few leaders, such as Alexander Hamilton, saw the critical need for developing manufacturing. Moreover, the land was yielding but little, and as late as 1790, one year before Eli Whitney left the farm to enter Yale University, cotton was still an experimental crop and the south raised only enough to meet limited domestic homespun needs. In 1784 a shipment of eight bags of cotton from Charleston to Liverpool had alarmed the British customs officials, mostly because they could hardly believe that United States plantations could produce that much for export in a single year.

Surprisingly enough, at Yale, Eli studied for the law. He found that essential in later patent struggles, but he was thoroughly exposed to the best Yale had to offer in systematic, scientific education and his diary proudly notes that he gave lectures in " . . . natural philosophy, the astronomy of the comets, different kinds of attraction, mechanical powers and the laws of simple and compound motion hydrostatics and hydraulics, central forces, optics, electricity, and chemistry."

Faced with the immediate need to earn a living, upon graduation in 1792 at the age of 27, he failed to receive an expected New York teaching assignment and, therefore, was recommended by President Stiles of Yale as a suitable person to act as a private tutor for the children of General Nathanael Greene, Georgia's famed hero of the Revolutionary War. This obviously fateful appointment took Whitney to the Greene plantation

* A Baltimore newspaper man and author widely regarded for his political and historical analyses.

near Savannah, Georgia and was the most important turning point of his life.

Without in any wise detracting from the extreme importance of the teaching profession, this put his talents more directly to actual productive work. Here, he met and worked with Phineas Miller, the Greene plantation overseer, who became his lifelong business associate in the cotton gin, his first revolutionary contribution to the new order of technology. By September, 1793, Whitney had, and I quote, ". . . struck out a plan of a machine in my mind and communicated it to Miller." He applied for a patent in October of that year.

By February, 1794, he had solved construction problems and finished his first model as required for formal issuance of a patent under the first U. S. patent law in 1790. Many others have adequately described his efcient machine for removing the clinging seeds from raw cotton fibers. This invention created an entire new industry, as Whitney points out in these words: ". . . makes the labor 50 percent times less without throwing any class of people out of work."

Whitney indicated his self-reliance by writing his own patent application and filed it personally with Thomas Jefferson, Secretary of State, who had jurisdiction over our early patents. On March 14, 1794, after sixteen months of intensive work, Whitney was granted his cotton gin patent. Our own profession would be wise to encourage the present Congress to furnish the present patent office with sufficient funds and help to attain again this speed in the issuance of patents.

"At a critical stage, Whitney appeared in Washington before an assemblage of government experts and Congressmen. He laid out a pile of parts and assembled ten muskets by picking standard parts at random — an unheard-of feat." — From "Through History with Standards" (Published by American Standards Association.)

WHITNEY soon faced the dilemma common to the creative who bring forth new concepts that are urgently needed. Some of the more observant recorders of technological progress are inclined to the view that a patent presents two immediate problems to its developer and owner. Shall he promote it or protect it? What course will serve the public interest and, at the same time, safeguard the owner's patent rights? These observers—the authors of *The World of Eli Whitney* —point out that frequently ". . . the only right conferred by a patent is the right to sue." While we must always allow for honest differences of opinion, this observation proved to be the sad truth for Eli Whiney.

I have earlier referred to the environment of Whitney's time, which was of an economy based largely on producing and trading agricultural commodities and a few handicraft goods. Most creative thought was channelled into political, rather than product or manufacturing, concepts. There was, however, a certain expectancy developing an underlying realization that new tools and machines were urgently needed to meet America's destiny. Thrusting a revolutionary, highly essential new machine like the cotton gin into this ready-made waiting market was a little like thrusting an arm into a cage of hungry lions.

Whitney and his partner, with faith that the patent would protect them, advertised in the Gazette in the state of Georgia, that they were prepared to gin any quantity of green seed cotton and that they would, " . . . for the encouragement of cotton planters erect ginning machines in different parts of the country." They promised to return one pound of clean cotton for every five pounds of green seed cotton they processed through their gin. Each five pounds of uncleaned cotton would yield one and two-thirds pounds of clean cotton. Thus, of this cleaned cotton, Miller and Whitney would retain two-thirds of a pound as their processing charge. To the ignorant and the uninitiated, to those unfamiliar with the true total costs of pioneering successfully a completely new product and process, these initial terms seemed high. However, the total benefits that the user was to secure and reap, tremendously outweighed this announced early cost. Many planters were barely at a subsistence level for lack of a means to process a marketable cotton crop. Few had the money and none had displayed the mechanical talent or enterprise necessary to give them this basic processing tool, the gin.

Nevertheless, unscrupulous imitators immediately began supplying carbon copies of the original Whitney gin. Simultaneously, refinements developed, and on top of this, a fire destroyed Whitney's New Haven manufacturing plant. Copies spread like a brush fire as smart blacksmiths and carpenters put their tools to work, se-

cretly making gins for surreptitious use, first by hundreds and then by thousands. Whitney's property became public property expropriated in the public interest. Law suits could not be filed fast enough to catch up with the infringements and legal loopholes developed to enable them to defy the inventor's patent right. Many politicians encouraged the mass trespass by distorting and smearing the whole principle of private patent rights. It is well to emphasize here, that the incentive developed from the protection afforded by the United States Patent Law has been, and continues to be, one of the most important aids in leading our country to its position of industrial leadership. State legislatures would acknowledge Whitney's rights, enter into a payment contract with him, make an initial token payment calling for future larger payments in subsequent years and then subsequent legislatures would rescind the action of the previous legislatures and renege on their contracts. In this modern day and age this reminds some that the word "renegotiation" probably originally derives from the word, "renege."

In any event, by 1797, Whitney's patented gins lay idle while pirating became universal, with no measurable reward to him except the pride of creativeness. Then he turned his talents into new and even more brilliant directions, reflecting in real life the later words of Rudyard Kipling, who wrote, "They copied all they could follow but they couldn't copy my mind, so we left them sweating and stealing a year and a half behind."

MODERN tool engineers facing their problems today can draw energetic self-acceleration from the realization that such inner drive and vast talents create unique forces that cannot be denied. The energy of Eli Whitney's keen and active mind swept away the clouds of depression and anxiety and, at the age of 32, he was ready to go forward again—straight to the greatest single contribution to the history of mass production. This time it was conscious planning rather than chance and environment.

Let me read some of the excerpts of an historic letter he wrote on May 1, 1798, to Oliver Wolcott, U. S. Secretary of the Treasury.

"By the debates of Congress," Whitney wrote, "I observe that they are about making some appropriations for processing arms, etc, for the U.S." Later, he says, "These circumstances induced me to write you and ask the privilege of having an opportunity of contracting for the supply of some of the articles which the U. S. may want. I should like to undertake to manufacture ten or fifteen thousand stand of arms. I am persuaded that machinery moved by water adapted to this business would greatly diminish the labor and facilitate the manufacture of this article. Machines for forging, rolling, floating, boring, grinding, and polishing, etc, may all be made use of, to advantage."

The American government was then anxiously trying to strengthen our defenses. Since France was torn apart by the French Revolution, the ties that bound it to America had broken and French privateers were raiding our shipping. While this risk was averted, the War of 1812 broke out fourteen years later.

Whitney's proposal in 1798 was electrifying. It must have seemed highly optimistic in view of the then-known fact that it would have required the services of all the young government's armories, working for years at full speed, to turn out this quantity of muskets, for gunsmiths in those early handicraft days were artists. They turned out their works of armament art by hand. They worked by accepted handicraft methods—one man on one musket from start to finish. That was the extent of the guarantee of quality and uniformity.

Within six weeks after his proposal, Whitney obtained a government contract under which he agreed to deliver ten thousand smooth bore flint lock muskets to the United States Government in a period of two years. Respectfully, modern business and modern governments might well note both those time intervals.

This was a formidable order, for Whitney had no intention of hiring gunsmiths because he knew they were few and far between and fully occupied with their own individual work. At the time he solicited the government musket order he had conceived a plan based on his early New Haven experience in training unskilled workers to manufacture his cotton gin. He had learned that it was possible to put skill into even the clumsiest of hands by devising simple practical methods, tools, and machines, and providing simple guides or gages for their efficient use. He spread the skills among many by dividing the labors of many. He did this alone and single-handed—with his own brain the brain his contemporaries now found hard to copy or follow. He devised the principles, the concepts and the methods—and worked out the machines and tools needed to make the principles practical and functional. Now, doubtless there were English, European and possibly other contemporaries of Whitney who thought similarly to him—that mass production was the most logical, efficient way to produce, economically and rapidly, single items bought regularly in quantities—but Whitney was alone and first in the combination of idea and accomplishment.

IN England, a start had been made toward standardization of turning and screw cutting. Slide rests and other basic tool engineering achievements were coming into wide acceptance and use. These developments had no parallel then in the United States. English and European engineers and tool designers were constructively exchanging views and ideas. However, this valuable kind of professional counsel was denied to Whitney for the simple reason that there were no other comparable engineering contemporaries with whom he could consult and swap experiences. For all practical and professional purposes he was as alone as Charles Lindbergh when he flew the Atlantic solo, nonstop.

Because both our profession and our United States machine tool industry stem directly from Whitney's mus-

ket undertaking, let me quote from a chapter titled, "The Birth of the Machine Tool Industry" by Mirsky and Nevins:

"Looking at the goal Whitney set for himself one can see that at various times since boyhood he had been concerned with the same problem. When he made a model pen for his pupils to copy, he had intuitively expressed his awareness of the benefits derived from setting a model for form and size and demanding that each replica reproduce the pattern as exactly as possible. Later, when he made gins, the advantage of standardizing the machines became obvious. In the presses and dies for the screw press he had again dealt with the concept in another form. He knew that this way of manufacturing was engaging the ingenuity of other men, for machinery that automatically made nails, for example, was being used in Rhode Island and these industries were pioneers in producing cheap, small, uniform metal objects. Whitney's familiarity with production problems convinced him that for the United States the solution lay in reducing a complex, which formed a labor skill, to simpler procedures, which workers could learn in a short time.

"He concluded that to increase the production of an article as intricate as a musket—methods, tools and machines would have to be created which would themselves be endowed with some of the armorer's skills and which would give uniformity and accuracy to make the parts interchangeable. The system would also solve the related problem of maintenance by making available parts for repair. Whitney's friends knew he had embarked on an adventure worthy of his talent. Henceforth, his would be a lonely search for the ways and means of attaining precision. Precision was an ideal to be approached and each step forward defined and clarified this ideal. Whitney's genius seized on the concepts of standardization and precision which were abroad in the minds of men, and translated them into tangible tools and processes."

Whitney realized that his plan of having each worker perform one or two simple operations on just one part of a musket called for two things—power machinery and dimensional control. He had not, however, fully anticipated the lead time that would be necessary for tooling-up a new industry in an America that was practically machineless. He did not even have a plant to convert; he had to start from scratch. Since there was no supporting machine tool industry in the United States, he had to build his own. There was no standard unit of measurement, so he had to devise his own. As a result, any similarity between Whitney's inch and that of any other plant anywhere was purely coincidental.

Finally, there were no workers skilled in the new type of operation he was developing. An abnormally cold winter and spring floods added to the problems Whitney faced in the first year of his contract.

His report to the Government in June, 1798, admitted this, and revealed as well how much this strange new adventure in tooling-up, for the first time, an entirely new type of plant for an entirely new type of mass production using standardized measurements and interchangeable parts, was a one-man operation in the fullest and most exact sense. He was not an egotist when he wrote, "At the time I entered into the contract my

The flintlock, or firing mechanism, of the Whitney musket. A flint, fitting in the opening of the raised arm, snapped down and struck the frizzen when the trigger was squeezed. The spark thus struck ignited a trail of powder which led to the main charge.

mind was occupied in devising the best and most expeditious mode of doing the work and I contemplated the dispatch and facility with which I could work, after all my apparatus was compleat and in motion, and did not sufficiently consider the time that must necessarily be taken up in constructing and making this apparatus . . . I find that my personal attention is more constantly and essentially necessary to every branch of the work than I comprehended. . . . indeed there is no branch of the work that can proceed well, scarcely an hour, unless I am present."

These were the calm, considered thoughts of a man who was trying patiently to explain a totally new concept of manufacturing and to gain the time he needed to put it into effect and operation. I parenthetically add that the problems of delivery time still remain to plague our profession.

ACTUALLY, Whitney's accomplishments in the first year of his contract were miraculous. They take on unbelieveable stature when we recall that more than a century and a half after Whitney, it understandably still requires, in our own mammoth and highly-skilled mass production organizations and machine tool and instrument plants, many, many months and sometimes years to tool-up a completely new product, and certainly many months to retool a major one.

Yet, from scratch, by the end of his first year Whitney is credited with having designed and built most of his tools, installed them in place, had them operating and had produced 500 muskets. On the first consignment of the ten thousand muskets, he encountered delivery problems in trying to meet his promise to our government of two years at $13.40 per musket. Some government officials were more skeptical than others, so in 1799 the harassed pioneer demonstrated to our national leaders that his methods, while radically new

and little understood, would produce results if his contract could be altered to give him additional time and the working capital he needed to carry the musket project to completion.

Before a group that included President John Adams, Thomas Jefferson, and other cabinet officials, Whitney proved once and for all that the manufacture of precise, interchangeable parts was more than a promise or just a dream. He disassembled the parts of ten muskets built, with his unique methods and new tools, and spread them out on a table in piles. He asked government officials present to select parts at random from each pile and he quickly assembled them into finished muskets in a matter of minutes.

This sensational demonstration won him the additional time he needed. Alone, he had achieved for the first time the technology that has since been a most important principle in all our engineering and industrial progress. He had displayed the kind of practical vision and intelligence that has been rare in the history of mankind and yet is also the challenging heritage of our profession today. In modern manufacture we live and work by these words of Eli Whitney which are excerpts from one of his writings:

"One of my primary objects is to form the tools so the tools themselves shall fashion the work and give each part its just proportion—which when once accomplished will give expedition, uniformity and exactness to the whole . . . if each individual workman must form and fashion every part according to his own fancy . . . I should have as many varieties as I have members of each part . . . in short the tools which I contemplate are similar to an engraving on a copper plate from which may be taken a great number of impressions perceptibly alike."

These first steps of Whitney's made our country's promise of abundance come true. He ran all the gauntlets of initial doubt, trouble, trial and error. He survived misunderstandings, abuse, rebuke, skepticism, and even expropriation and pirating. No wonder our profession takes understandable pride in this great industrial ancestor. No wonder with this background our great profession, with modest self-confidence and respect, gratefully acknowledges the constant assistance and strength we derive from the cooperation of thousands of fellow workers in the hundreds of plants across our great thriving land, as well as from the other scientific and technical societies and industrial associations and their great memberships. Some societies, too, have a just claim on the genius of Eli Whitney; he is great enough to serve for all of us—and we welcome the sharing. We realistically recognize that, despite the lessons we might have learned from the trials and tribulations of Whitney, it is apparent that new concepts still have to struggle for a hearing and surmount resistance to constructive change, and sometimes worse.

These Eli Whitney lectures should be no salute to the dead hand of the past, but rather mark a reawakened and alert awareness of the promising possibilities of the future. In today's terms, Whitney's life should be, not only a constant inspiration to those who pioneer constructive change, but also a powerful reminder that if we are to have growing abundance it can only be based on growing productivity. This is a concept for our great and honorable profession, which is broad enough and sound enough to embrace a comprehension and understanding that, when mistakes in distribution, design, manufacturing quality, or the financing of a product bring about an unbalanced surplus condition, the blame should not be placed upon the principle of abundance itself—not in a world where too many hard working people still want for today's justifiable and accepted essentials. An enlightened conception of growing abundance based upon growing productivity also understands the necessity for preserving, both in government and industry, equitable incentives and rewards for new, practical, creative concepts as our dynamic system continues its stimulating growth. Such an enlightened conception also comprehends, appreciates and remembers, with broad mutual respect, the many factors and segments, both spiritual and material, that share, both in contribution and credit, in achieving our growing productivity.

Some of you may have read recently the following prose entitled, *Lest We Forget,* which I quote, "We forget these things too soon—that other men died to keep us free—that God-fearing ideals created freedom —that our children cannot live by bread alone—that a nation can be no stronger than its faith—that our future can be no greater than our vision—that the quality of our daily work is a measure of our character."

And so, our profession welcomes and accepts its share of responsibility for growing productivity and merited abundance. As an important part of the whole, this audience in particular has a magnificent historical opportunity to create an even more brilliant American future. For, while it is true that all the yesterdays are but memories which can never be recovered and the tomorrows are yet only visions, each today lived productively lets each yesterday remain a standard of happy achievement and transforms every tomorrow into a bright and shining hope.

Let us do our part to strengthen our beloved America as that bright hope for all the world.

BIBLIOGRAPHY

1. Burlingame, R., "Machines that Built America." New York. Harcourt, Brace & Co., 1953.
2. Constance, C. W., "Eli Whitney and the Birth of American Technology." Boston. Little, Brown & Co., 1956.
3. Kipling, R., "Mary Gloster."
4. Mirsky, J. and Nevins, A., "The World of Eli Whitney." New York. Macmillan Co., 1952.
5. Olin Mathieson Corporation, "Lest We Forget," New York. Olin Mathieson Corporation.
6. The Sheffield Corporation, "The Man Who Started Mass Production," Dayton, Ohio. The Sheffield Corporation.

The New Safety Code for Portable Metal Ladders

by **R. L. Lloyd**

ON May 22, 1951, at a meeting of the ASA Sectional Committee A14 on Ladders, it was decided to assign to a subcommittee the project of developing an American Standard Safety Code for Portable Metal Ladders. The subcommittee was established with representation from the National Bureau of Standards, the Metal Ladder Association, Underwriters' Laboratories, Inc, the Liberty Mutual Insurance Company, the Great American Indemnity Company, and the Department of the Navy.

The subcommittee began its work by reviewing a proposed Code for Metal Ladders which had been prepared by the Metal Ladder Association. An effort was made to have the definitions and the requirements in general conform to the existing American Standard for Portable Wood Ladders; but agreement was reached by the subcommittee that the requirements for portable metal ladders should be based on performance and should not be restricted unnecessarily by detailed constructional or dimensional limitations. This meant that metal ladders would be subjected to mechanical tests to determine compliance with the requirements.

In order to establish a test which would insure sufficient strength and rigidity, reference was made to a test included in a British Standard. This test used eccentric loading on the side rails of a ladder while supported at the ends, with the ladder in a horizontal position. The test permitted the measurement of the deflection of the ladder under load and also of its ability to resist twisting or racking. Tests and measurements were made on a number of different types of aluminum and magnesium ladders before agreement was reached on the values to be specified for deflection and loading. The limitation on the difference in deflections of the two rails was based on a ladder 16 inches in width and was later modified to be expressed in angular degrees so as to apply to ladders of any width.

In applying a horizontal bending test to the ladder, the test load was based on an 800-pound force applied to the center of a ladder inclined against a vertical wall and set at an angle of 75½ degrees with the ground. This angle represents setting the base of the ladder at a distance from a vertical surface equal to one-fourth the length of the ladder. In order to facilitate testing, it was decided to support the ladder six inches from each end. Calculations were made to determine the effect of this shortening of the span length on the test load required to produce a given deflection. For ladders of 30 feet and more, the difference in the test load was less than 5 percent; and, consequently, this difference was considered to be of little importance and it was agreed to disregard it in favor of using a single test weight of 200 pounds. This test load is applied equally to the side rails by using a beam.

One of the most important structural features of a metal ladder is the connection of the rung to the side rails. If the rung is not prevented from turning in the side rail, the rigidity and safety of the ladder is impaired. In conducting the rung torque test, the torque is applied to the rung close to its attachment to the side rail. While the other end of the rung is not free during this test, the result of the torsional test is not materially affected by this fact.

After establishing an 800-pound load test applied in the center of the rung, it was found that some permanent deflection occurred on rungs more than 16 inches in length; accordingly, a small permanent deflection was permitted as long as no other visible weakening of the rung or side rails occurred.

The stability test specified for stepladders is a performance test and should not be judged on the geometry of the ladder design alone. It was found that a looseness of parts of the ladder could have a marked effect on the ability of a ladder to pass this test.

In considering the length of a stepladder, some concession had apparently been made with relation to wood stepladders to permit the use of standard-size lumber. As metal ladders could be fabricated to any desired length, it was agreed that metal stepladders should be made to within one-half inch of their specified length.

Considerable time was devoted by the subcommittee to the general subject of care and use of a portable metal ladder. Persons using these ladders should understand

---

Mr Lloyd is head of the Safety Codes Group of the National Bureau of Standards and alternate representative of the Bureau on Sectional Committee A14, Safety Code for Ladders. He was chairman of the subcommittee that prepared the new American Standard Safety Code for Portable Metal Ladders, A14.2-1956.

Copies of the American Standard safety codes for ladders can be obtained from the American Standards Association: Portable Metal Ladders, A14.2-1956, 50 cents; Fixed Ladders, A14.3-1956, $1.00; Portable Wood Ladders, A14.1-1952, 75 cents. (Send check with your order to avoid handling charge.)

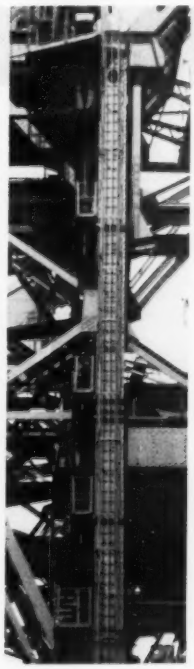
that they are designed to be used at the specific angle of 75½ degrees with the horizontal and should have a sound, flat bearing place for the feet of the side rails and a vertical support for both of the side rails at the top. When the ladder is used in the proper position, it is designed to hold a 200-pound man with a safety factor of four. The ladder is not designed to be used in a horizontal position and the weight of a man on it in this position removes all of the safety factor originally designed into the ladder.

Care in handling a ladder is also of considerable importance in that impacts may cause structural damage which will result in collapse or other failure of the ladder. Storage is also important. The ladder must be properly supported during storage and must be properly protected from the weather, as water or dampness may cause corrosion or other deterioration at the point where the rungs are fastened into the side rails.

The subcommittee was well aware of the danger of using a metal ladder in connection with electrical work. While means of insulating a metal ladder are satisfactory for low-voltage work, such means are not desirable for work around high-voltage circuits. Some objection has been raised as to the actual wording used in the section of the standard dealing with electrical hazards. Further consideration will be given to this subject when the code is revised.

As the American Standard Safety Code for Portable Metal Ladders, A14.2-1956, is a new code and is based on performance, it is expected that much can be learned by its use in the field. After some experience is obtained, it is expected that any needed revision will be effected.

Safety Code for FIXED LADDERS Now Available



by **Robert L. Moore**

AFTER carrying out a thorough and time-consuming study of the design and construction of fixed ladders, the subcommittee set up by Sectional Committee A14 to develop a standard for this type of ladder has completed its work. A safety code based on its findings has been approved by the American Standards Association as American Standard A14.3-1956, American Standard Safety Code for Fixed Ladders.

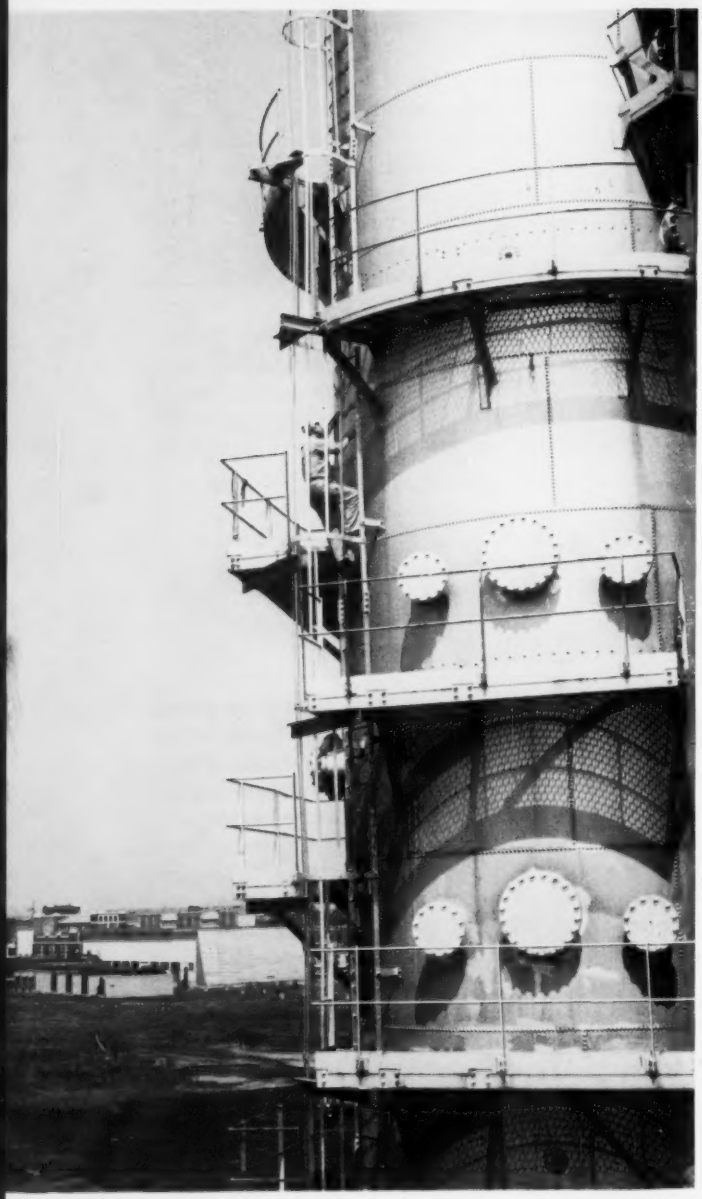
The standard provides general requirements for construction and care of fixed ladders. It shows how to install and design fixed ladders, so that employees will not have accidents while using them in their normal activities. It is intended to help those establishments which use or design fixed ladders or manufacture them for installation. It is also intended to serve as a guide for state authorities and other regulatory bodies.

Some safety provisions for fixed ladders had been included in the American Standard for Construction, Care, and Use of Ladders from the time it was first approved in 1923 until the revised edition of 1948, although this standard was primarily concerned with wood ladders. This is now recognized, and the most recent edition of the original safety code is the American Standard Safety Code for Portable Wood Ladders, A14.1-1952. Provisions for both metal ladders and fixed ladders, finally removed from the original safety code, are now given consideration in separate, individual standards. This action was taken due to the belief of the committee that rapid development and industry acceptance in the metal ladder field warranted special consideration and treatment of fixed ladders (which are usually metal) and of portable metal ladders in distinct and separate standards.

Subcommittee A14.3 was created for the purpose of reviewing the data on fixed ladders originally contained in the code prior to the 1948 revision, reviewing existing state codes, and making any changes or additions necessary to conform with the requirements of all interested groups.

The subcommittee's work brought out many interest-

Mr Moore is Director, Technical and Engineering Division, Lumbermen's Mutual Casualty Company, Chicago, and chairman of the Subcommittee on Fixed Ladders that developed the new American Standard A14.3-1956.



Con Edison

ing points, many of a controversial nature. One point emphasizes the importance of safety code coverage for fixed ladders. There has been no such code coverage for portable metal and fixed ladders since deletion of all reference to these types of ladders in the 1948 revision of the Ladder Code.

The new American Standard A14.3-1956 solves this problem for fixed ladders.

Many were the arguments by engineers and designers on one phase of the problem. This was: Which is desirable, practical, and proper, that a ladder rung of any section of a fixed ladder shall be located at the level of the landing laterally served by the ladder, or that it shall be located six inches below the landing? This same problem was discussed and debated pro and con in connection with fixed ladders in those cases where access to the landing is *through* the ladder. The new American Standard A14.3-1956 standardizes thinking in this regard by stating:—

"One rung of any section ladder shall be located at the level of the landing laterally served by the ladder. Where access to landing is through the ladder, the same rung spacing, as used on the ladder, shall be used from the landing platform to the first rung below the landing."

The American Standard Safety Code for Fixed Ladders is one which provides engineering data in the form of design requirements. These data will assist the engineer or designer in the design of fixed ladders. For instance, the following appears under the heading Design Considerations:

"All ladders, appurtenances, and fastenings shall be designed to meet the following load requirements:

(1) The minimum design live load shall be a single concentrated load of 200 pounds.

(2) The number and position of additional concentrated live load units of 200 pounds each as determined from anticipated usage of the ladder shall be considered in the design.

(3) The live loads imposed by persons occupying the ladder shall be considered to be concentrated at such point or points as will cause the maximum stress in the structural member being considered.

(4) The weight of the ladder and attached appurtenances together with the live load shall be considered in the design of rails and fastenings."

Further research brought out the fact that most states have no codes to govern safety for fixed and metal ladders. Now it is hoped that the various states will adopt this new American Standard for Fixed Ladders.

Many industrial plants have fixed ladders. It would be advisable now for each plant to make a safety and engineering check of existing ladders to see if they comply with the standard.

The committee hopes that all concerned will help bring about wider use of the new standard. It suggests that safety engineers, for example, urge their local safety councils to publicize the existence of the code and urge them to bring any pressure to bear that might lead to adoption of this code as a state code.

The committee also suggests that the subject of Fixed Ladders, including discussion of the new code, is suitable for discussion at a future meeting of the local chapter of the engineering society. It asks that those concerned with safety gather statistics on fixed ladder accidents in the area or in the company, that they take pictures of ladders without cage or basket guards, and that they use this information for discussion to help bring about greater compliance with the code.

The committee believes that promotion of this standard by associations and other groups will do much to recommend its use and adoption in the various states.

ENGINEERING MATERIALS STUDIED BY ASTM TECHNICAL COMMITTEES

THIRTY-FIVE of ASTM's technical committees held about 300 committee and subcommittee meetings at the Society's annual Committee Week February 4-8, 1957. During the five days of meetings, 1311 technical men registered for intensive work in committees, discussing and correlating the research upon which ASTM specifications and methods of test are based. The committees put into final shape new and revised tentatives and standards which will be recommended to the Society for adoption at its Annual Meeting at Atlantic City in June. In most cases, however, committee actions are being submitted to letter ballot of the committee before being submitted to the Society for final action.

Some of the committee actions having an effect on standard specifications or methods of test are reported below.

Among the more important actions taken by Committee E-1, Methods of Testing, was a revision in method E-4, Tentative Method of Verification of Testing Machines, to provide new information on selection of test loads. A revision in method E-3, Tentative Methods of Preparation of Metallographic Specimens, will include a new classification of extensometers for determining the yield strength of metallic materials. Several new definitions on fatigue testing will be added to method E-6, Definition of Terms Relating to Methods of Mechanical Testing (Tentative), which will make them practically identical with those now published in the Manual on Fatigue Test, STP 91. Also included in E-6 will be a series of definitions relating to creep testing.

The committee also has revised Methods of Test for Thickness of Solid Electrical Insulation, D 374.

For the first time in years it has been proposed to include a new steel-making process in an ASTM specification. The proposal was made at a meeting of ASTM Committee A-1 on Steel. Both Kaiser Steel Corporation and Jones and Laughlin Steel Corporation have requested that the oxygen converter process (known in Europe as the L D process) be included in Specifications A 120 for black and hot-dipped galvanized welded and seamless steel pipe, the committee reports. This steel has been accepted by Lloyds for shipbuilding, and also is generally accepted in Europe and the Middle East for pipe manufacturers, pressure vessels, penstocks, etc.

A new rivet steel specification has been drafted. This is intended to cover alloy rivet steel suitable for use with high strength low alloy steel. The tensile strength range is 68,000 to 82,000 psi, with a yield point of 50,000 psi, minimum, and an elongation in 8 in. of 20 percent minimum.

A new and extensive atmospheric corrosion program is planned by Committee B-3 on Corrosion of Non-Ferrous Metals and Alloys. The program calls for the exposure of many of the newer alloys and some of the metals such as titanium, which have recently become of commercial importance.

An eight-year program of calibrating various exposure sites in North America has been completed. The data will be published in the near future and will show the relative corrosivity of the various locations.

Standardization of salt fog and other tests continues as experience is gained from cooperative studies of various laboratories.

A change in the minimum weight of vermiculite aggregate for use in interior plaster was approved by Committee C-7 on Lime. This revises the present limits in ASTM Specification C 35 from 7½ lb to 6 lb minimum, confirming previous action by Committee C-11 on Gypsum which has joint jurisdiction on this standard.

A revision of the Specification for Quicklime and Hydrated Lime for Silica Brick Manufacture (C 49) was approved, with an additional method of test included.

Aggregates for masonry grout will be covered in new specifications accepted by ASTM Committee C-12 on Mortars for Unit Masonry. This proposed specification will include both natural and manufactured sand used alone, or in combination with coarse aggregate in grout for reinforced masonry.

The present Specification for Mortar for Unit Masonry (C 370) is to be revised to avoid misuse. The Committee finds that field tests of mortar are being conducted and the resulting test data referred to the requirements of Specification C 270. This is not the intent of the specification, the committee reports. The revision will clarify this to prevent such misuse.

ASTM Committee D-7 on Wood reported an accelerated laboratory test method for the evaluation of natural decay resistance of wood, together with a method for measuring the effectiveness of wood preservatives. The committee also accepted revisions in the basic principles for establishing structural grades of lumber, ASTM D 245.

The committee is considering major revisions in Standard Method of Test for Integrity of Glue Joints in Laminated Wood Products for Exterior Service, ASTM D 1101, as a result of data accumulated by the Forest Products Laboratory and the Department of the Navy.

The committee expects that the wood pole testing program which has been under way for the past three years will be completed by the end of 1957.

Standard Definitions of Terms Relating to Fiberboards have been accepted.

The measurement of abrasion resistance of thermal insulating materials is included in a new proposed method of test submitted to Committee C-16 on Thermal Insulating Materials. A recommended practice for prefabrication or field fabrication of thermal insulation fitting covers was also accepted. A third new tentative presented was a proposed method of preparing specimens of bituminous and non-bituminous coatings for testing purposes.

Adoption of four new projects and a complete reorganization of its subcommittee structure featured the meeting of Committee E-6 on Methods of Testing Building Constructions. Representatives of a number of building code organizations present at the meeting stressed the importance of the work of Committee E-6 in the further development of modern building codes. These trend more and more in the direction of performance codes, for which standard test methods as well as specifications are essential, they said.

Work already done in testing methods for trusses (E 73) will be extended, as one of the new projects, into the field of testing wooden roof trusses which are now being widely used in house construction. Standard methods of test for vapor barriers under concrete slabs on the ground, as used for house foundations, will be developed. This project was adopted after consultation with Committee C-16 on Thermal Insulating Materials. A new group will study a proposed method for making load tests on completed structures, standardization of which is urgently needed in building codes, the committee reports.

The difficult problem of testing windows will be tackled by a new subcommittee. There was unanimous agreement that the time has come when standard methods of test for these vital building components are urgently needed. Existing test methods under the jurisdiction of the committee will be reviewed for possible revision at the next meeting of the committee during the week of October 7.

Important advances in the fields of electron metallography and cast iron metallurgy were reported at meetings of Committee E-4 on Metallography. The committee announced its intention to have the Society publish a proposed method for the Classification of Phases in Metallurgical Systems. This will be submitted to metallurgical groups throughout the world as a universal classification system.

ASTM Committee B-6 on Die Cast Metals and Alloys approved the deletion of two aluminum base alloys and a zinc base alloy from ASTM specifications covering die castings. They also recommended that a magnesium base alloy be dropped.

Aluminum base alloys SC54A and SC54B are no longer used since they have been replaced by better alloys, the committee explained. The use of zinc base alloy AC43A and magnesium alloy AM100B were dropped also since they are not as stable as other alloys.

Some of the most significant results of the meeting were final discussions concerning specification B86 covering zinc base die castings. Changes contemplated in the specification include raising the maximum copper limit in alloy AG40A from the present 0.15 to 0.25 percent and the addition of a footnote stating that copper in the range of 0.25 to 0.75 percent will not affect the serviceability of these die castings in the majority of commercial applications. In process is a note of warning stating that alloy AC41A should not be subjected to prolonged exposure to temperatures above 200 degrees F.

A new technical committee, C-23 on Sorptive Mineral Materials, held its organization meeting February 5. E. F. Parker, General Electric Company, was chairman of the Steering Committee during the organizational period and acted as temporary chairman at the organizational meeting.

The scope of the new committee includes "the definition of terms and the formulation of test methods covering sorptive mineral materials used for surface maintenance and safety and the stimulation of research to accomplish the foregoing purposes."

The subcommittee organization will consist of (1) an executive subcommittee, (2) a subcommittee on definitions and nomenclature, (3) a subcommittee on sampling and testing, and (4) a subcommittee on recommended practices. The subcommittee on recommended practices will not be activated at this time. Methods of tests will

be stressed as the primary need and objective for the committee.

The initial effort in developing standard test methods will be to compile and review existing methods used in industry. Such test methods as the ball mill Rotap hardness, shaking, and stirring tests are among those which will be reviewed. The two primary properties requiring attention will be the sorptive qualities and wear properties of mineral materials. A principal objective is to establish correlation of laboratory tests with performance.

Additional consumer representation on the committee is desired. Anyone interested, either from the producer or consumer point of view, may contact ASTM for information.

Officers of the committee are: A. C. Balden, Central Engineer, Chrysler Corporation, Detroit, Michigan, chairman; C. Y. Haas, Manager of Adsorbent Sales, Minerals & Chemicals Corporation of America, Menlo Park, N. J., vice-chairman; Robert L. Shirley, National Sales Manager, Celatom Products Dept, The Eagle-Picher Company, Cincinnati 1, Ohio, secretary.

Committee C-22 on Porcelain Enamel is now circulating a proposed method of test for torsion resistance of laboratory specimens of porcelain enameled iron and steel for committee action. Six other projects on physical properties being studied include spontaneous spalling, tearing, evaluation of enameling iron, coefficient of expansion, consistency of enameling slip, and torsion.

Reflecting the need for standards for new refractory products developed in recent years, Committee C-8 on Refractory Materials approved a tentative classification for castables or refractory concretes.

The committee also approved a tentative revision of Standard Fireclay Brick Classification, C27-41, lowering the P.C.E. (Pyrometric Cone Equivalent) requirements of the Low Duty class from cone 19 to cone 15. This will permit inclusion of certain steel pouring pit refractories and prepare the way for an eventual standard specification for these materials.

A cooperative study with the National Bureau of Standards of various types of furnaces for determining the P.C.E. values of refractories is well under way. This study may lead to the selection of a single standard furnace and more precision in the determination of P.C.E. values.

A suggested classification for mullite brick is to be delayed until a number of special standard tests can be developed to more carefully define the requirements. A study of a hot load (compressive) test for this purpose was authorized as the first step in this program.

Among the accomplishments of Committee D-11 on Rubber and Rubber-Like Materials was presentation of revised methods for testing rubber hose (Tentative Methods of Testing Rubber Hose D 380-51T), revised specification for three kinds of insulating tape (Friction Tape of General Use for Electrical Purposes D 69-52T; Rubber Insulating Tape D 119-48T; Ozone Resistant Rubber Insulating Tape D 1373-55T), a new method for sampling synthetic rubber, and a revision of methods for determining the viscosity of rubber (Tentative Method of Test for Viscosity of Rubber and Rubber-Like Materials by the Shearing Disk Viscometer D 927-55T).

Committee D-19 on Industrial Water approved three proposed new tentatives for committee letter ballot. They cover methods of test for nitrite by the Rider-Mellon method, for low concentrations of iron by the phenanthroline method, and for appearance properties of industrial water.

Committee D-22 on Methods of Atmospheric Sampling and Analysis has concentrated on development of methods for continuous recording of air pollutants. The committee approved an alternate method for continuous recording of sulfur dioxide, known as the electrolysis method, to be added to the conductivity method already published as tentative (ASTM Method D 1355). A method for continuous recording of fluorides in the atmosphere is under intensive study.

Blacker inks and white-wall tires that stay white may result from the activities of the new ASTM Committee D-24 on Carbon Black. At its meeting in February, the committee reported that producer-consumer agreement has been reached on a number of methods for evaluating the properties of carbon blacks. The committee is recommending as tentative four methods for determining physical properties, including attrition, pellet-size distribution, pour density, and sieve residue. Other methods under active consideration are for determination of fines, ash content, weight loss on heating, pH, and iodine value.

Committee D-25 on Casein and Similar Protein Materials which was organized in 1956 held its first full fledged meeting February 4-8. Among the first tasks was a review of the possible definitions of terms to be considered. The committee held some preliminary discussions on methods to be used for sampling and testing and approved the development of a method for testing the viscosity of casein as the first step. The committee also reviewed chemical tests for casein and tests for moisture, nitrogen, fixed ash, fat, acidity, pH, and total acidity. The determination of particle size will also be considered.

An interlaboratory collaborative test program has been set up using samples of casein and soy protein. These samples will be tested for moisture, particle size, viscosity and solubility using methods discussed at the meeting.

Are These Cases Work Injuries?

Rulings of the Committee on Interpretations are now being issued on whether unusual industrial injury cases are to be counted as "work injuries" under the revised edition of American Standard Method of Recording and Measuring Work-Injury Experience, Z16.1-1954. Sponsors of ASA Sectional Committee Z16 are the National Safety Council and the Accident Prevention Department of the Association of Casualty and Surety Companies.

Case numbers in the new series start with 400. The cases below represent the eighth installment in the series under the revised edition of the standard. The numbers in parentheses refer to those paragraphs in the standard to which the cases most closely apply.

Cases 400-450 have been reprinted with an index prepared by the National Safety Council. To make it easy to locate all cases applying to any section of the standard, the index is arranged both numerically by paragraph number of the standard and numerically by case number. Each index reference includes a brief description of the case. Reprints are 50 cents per copy, available from ASA. Liberal discounts are offered for quantity orders.

Now that the second 50 cases have been published they will be reprinted also and the index will be revised and republished to include all 100 cases.

CASE 482 (1.1)

A boilermaker was lowering himself from inside a condenser shell, and allowed the full weight of his body to fall on his arms. His chest over the heart area and front of his left shoulder was strained.

Decision: This injury should be included in the work injury rates. The committee concluded that this injury arose out of and in the course of the employee's work.

CASE 483 (1.2.4)

While wiring a motor, an electrician stepped down from the top of a motor onto a scaffold pin lying on the base. He slipped and turned his ankle, fracturing a bone of his right foot. A boot cast was applied to his foot, and the employee returned to work the next day to perform his regular job.

Decision: This injury should not be included in the work injury rates. The committee concluded that since the employee did not lose any time from work, this injury should be classified as a medical treatment case, and not included in the regular work injury rates.

CASE 484 (1.2.4)

At 9 A.M., a carpenter slid off the steel beam around which he was placing wedges, and hit his right knee on the beam, bruising it. He reported this to his foreman, but continued working. At 4:30 P.M. he was laid off due to lack of work, at which time he made a claim because of his injury. He was sent to a doctor who reported an estimated disability of six weeks. The company doubted if he would have lost any time if he had not been laid off.

Decision: This injury should be included in the work injury rates. The committee concluded that the employee received his injury while at work, and the time charge should be in accordance with the doctor's report.

CASE 485 [A1.6(f)]

Before work-starting time an employee was walking along the cindered path on company property leading from the parking lot to the place of work. The path was not icy except at one or two spots. The employee slipped and fell at one of these icy spots with resultant injuries. The parking lot was provided for the convenience of employees, but was unsupervised.

Decision: This injury should be included in the work injury rates. The committee concluded that the path was on company property, the point at which the employee left the parking lot and entered the path being considered as the entrance to plant property.

CASE 486 (1.5)

The plant had a fire department and fire truck, both of which served the local community as well as the plant. The signal system for both the town and the plant was located in the fire house which was within the confines of the plant. Full-time firemen were paid by the plant on the basis that the men were subject to 24-hour call in the event of fire in either the plant or town.

On the day in question, there was a fire in an adjoining community. Since the two fire departments had a mutual aid understanding, the fire chief in the neighboring community asked for the assistance. The plant fire chief called the plant manager who agreed to have their fire department called.

The fire was brought under control, and a few minutes later the plant assistant chief, while helping to roll up hose, slipped on an icy spot and fell, striking his left hip. He received a subtrochanteric fracture.

Decision: This injury should be included in the work injury rates of the plant. The committee concluded that while this was an external event—a fire in an adjacent town—the injured man was an employee among whose duties was fire fighting, and the plant manager had sanctioned the calling of the fire department.

CASE 487 [1.2.3(g)]

Two questions were asked concerning an interpretation of paragraph 1.2.3(g). The first concerned the words "fingers and toes" and whether the intent of the standard was exclusively fingers and toes, or whether the term "simple fracture" was meant to apply to other parts of the body as well, fingers and toes being simply an example. The second question concerned the definition of "simple" fracture, and whether this referred to the medical term "simple" as opposed to "compound" or whether it meant "not severe."

Decision: The committee concluded that the phrase "simple fractures of the fingers and toes" should be considered as an example or as a specific reference stated for emphasis, and that the paragraph really meant: No fracture shall be counted as a permanent partial disability unless it results in permanent limitation of the use of a member of the body or a permanent impairment of a body function. The term "simple" as used in the standard had no reference to the medical classification of fractures, and was defined correctly in the paragraph as: A simple fracture is one which "does not result in permanent impairment or the restriction of normal function of the injured member."

CASE 488 (1.2.3)

Two questions were asked concerning an interpretation of parts (b), (c), and (g) of paragraph 1.2.3. Parts (b) and (c) mentioned "loss of fingernails and toenails" and "loss of tip of finger." The company wondered if thumb injuries of the type described in these parts and also in part (g) should be included in the injuries causing permanent partial disability.

The second question raised with regard to part (g) was whether "simple" fracture applied to "other members of the body" (other than fingers and toes); or to "such other types of fractures to the fingers and toes."

Decision: In paragraph 1.2.3, items (b), (c), and (g) should be interpreted to include losses of the thumb and great toe as well as of the fingers and toes. See also decision 487.

CASE 489 (5.2)

While unloading ballast bags from the

rear pit of a plane, a mechanic tore some ligaments in his lower back. These ballast bags weighed approximately 50 pounds each. Due to the limited work area, unloading ballasts was normally a one-man job. This was a normal job which was being done in a normal manner. The employee did not slip, trip, or fall, and did not overexert himself. However, the space in the pit was limited, having an approximate height of 55 inches, requiring the employee to work in a somewhat stooped-over position.

Decision: This injury should be included in the work injury rates. The committee concluded that the handling of 50-pound bags in a cramped position apparently resulted in overexertion.

Case 490 [1.2.3(c)]

Four questions were raised concerning an interpretation of paragraph 1.2.3(c). The first was a simple fracture where there was perfect healing with no loss of time or function, and no amputation. The second was a compound fracture where chips of bone were lost in the treatment of the injury, but no loss of function or time resulted. The third was loss of flesh of the finger tip, but with no loss of bone resulting from the injury; however, the doctor trimmed off part of the tuft of bone in treatment; no loss of time or function resulted. The fourth was loss of thumbnail in treatment where a small portion of the distal end of the tuft adhered to thumbnail but there was no loss of time or function.

Decision: The committee concluded that since items (a) through (g) of paragraph 1.2.3 were exceptions, they had to be construed literally and could not be extended by analogy to apply to any circumstance other than that explicitly described.

Since paragraph 1.2.3(c) referred only to finger tip injuries without bone involvement it could not by implication be extended to injuries to any other part of the body or to any injury in which a bone was involved. The first two questions would, therefore, have to be classified in accordance with the first paragraph of 1.2.3.

Since bone was removed in the third and fourth examples, and therefore was involved, paragraph 1.2.3(c) would not apply, and the classification would have to be based upon the application of the general rule.

Case 491 (1.6)

An employee received a minor injury, and immediately reported to one of the company dispensaries where the nurse on duty recommended that a doctor be consulted. The employee was taken to the main dispensary where a company doctor examined him, then made a later appointment for him with a specialist.

Because no company vehicles were available to transport the employee back to the hospital for his appointment with the specialist, his foreman offered to take him in his personal automobile. This action was approved by the company physician.

En route to the hospital the foreman and the injured employee were involved in an automobile accident. The foreman was able to continue on his job without losing time, but the previously injured employee received a fractured left arm and multiple lacerations and contusions about the head and face, and was not able to return to work for quite some time. The specialist did not believe the first injury to this employee would have resulted in lost time.

Decision: The injury should be included in the work injury rates. The committee concluded that the travel on the public highway was definitely tied in with the employee's work, and the resulting injury arising from the travel arose out of and in the course of his employment.

Case 492 (1.1)

A depiler operator stooped down to insert a bolt in the bridge of the depiler, and when he straightened up he could not straighten his right knee until he had manipulated it with his hands. Two days later he experienced the same difficulty. The plant doctor diagnosed this case as a torn cartilage which required surgery.

The employee was doing his regular work, and nothing of an unusual nature occurred during his work. The plant doctor believed that anyone might stoop for any reason, and suffer this same result.

Decision: This injury should be included in the work injury rates. The committee concluded that the injury was work-constituted and should, therefore, be charged.

Case 493 (5.2)

A service clerk whose work mostly involved materials handling reported to the medical department, stating that his back pained him. His condition was diagnosed as acute back strain. While performing his regular work he had lifted a compact piece, not bulky, of aluminum weighing 60 pounds from a skid to a forklift truck, a height of three inches. As he straightened up he had felt a pain in his back. There was no history of a slip, trip, fall, sudden effort or blow on the back. The company doctor said the injury was not due to overexertion.

Decision: This injury should not be included in the work injury rates. The committee concluded that there had been no accident or incident, and since the doctor expressed the opinion that the injury was not due to over-exertion, the members did not believe it should be counted.

Case 494 (1.6)

An employee purchased a pair of safety shoes at the company store and wore them during working hours. A blister appeared on his heel and was present for several days when his foot started to swell and pain began shooting up his leg. He reported his condition to the company hospital, but by then cellulitis had set in, and it was necessary to admit him to a hospital for treatment.

Decision: The committee concluded that, if there was evidence that the blister had resulted from shoes required by employment, the injury should be counted.

Case 495 (5.14)

An employee's job consisted of handling materials which caused a non-disabling dermatitis condition. Although the condition was not severe enough to disable her, she was sent to a "panel physician" for diagnosis and treatment, and he indicated he wished to patch test her to determine sensitivity. He did this even though the company medical director advised against it. As a result of the patch test, the dermatitis flared up so severely that the employee was disabled.

Decision: This injury should not be included in the work injury rates. The committee concluded that the lost time was due to the patch test to determine sensitivity, not in connection with treatment. If the same patch test had been made when the injured was free from dermatitis, there would be no question as to whether the lost time was in any way related to industry.

Case 496 (5.2)

A groundman was using a five-foot shovel to open up the hole for a guy anchor. After removing about half the required soil, he attempted to straighten up when a severe pain caught him in the lower part of the back. He was sent to the doctor for medical attention, and was given an injection of xylocaine. The injured lost no time from work.

Decision: This injury should not be included in the work injury rates. The committee concluded that since this employee lost no time from work, this injury should be treated as a medical treatment case and not as a disabling injury.

Case 497 [A1.6(h)]

A mechanic went to the lunch room which was provided by the company and

situated on company property, and began his meal. The lunch room was equipped with tables and benches and a shop-made gas space heater used solely for the convenience of the plant and maintenance personnel. The lunch room was not used every day, but only on occasion, and generally on days when a maintenance crew was working in the plant. The use of the room and its facilities could not be construed as a condition of employment. However, no other such facilities were near-by, and employees leaving the premises for lunch would have to do so by means of automotive transportation. The mechanic felt cold, and went to light the heater. As he bent down to do so a flash occurred because of the gas which had accumulated in the heater, and the employee sustained first and second degree burns of the right hand and forearm.

Decision: This injury should be included in the work injury rates. The committee concluded that lunch room provisions as shown in A1.6 (h) did not apply in this case as the room was not managed or supervised.

CASE 498 (1.1)

A company which required that all its employees wear safety glasses inside plant gates at all times reported that it had several cases which had to be referred to doctors because of a foreign body in the eyes. In most cases the employee had no knowledge of anything having entered his eye. The company questioned as to whether such cases were reportable.

Decision: The committee concluded that each case would have to be investigated to determined its reportability. This might include the doctor's close observation of the particle removed to determine whether it was related to work exposure. It was suggested that if the number of these questionable eye cases was large, then it would be reasonable to assume that they were work-connected It was agreed that any of these eye cases which did arise out of and in the course of employment should be included in the records.

CASE 499 [A1.6(f)]

The employee had finished work five or ten minutes before quitting time. Instead of going directly to the punch clock area, he went to the recreation area, and began to play ping-pong. As he was running after the ping-pong ball his attention was distracted, with the result that he tripped over a bench shattering his knee cap which later had to be removed.

Decision: This injury should not be included in the work injury rates. The committee concluded that the employee had taken himself out of his regular employment when he stopped on his way out of the plant to play ping-pong.

CASE 500 (1.1

A company allowed time off from work to permit employees to donate blood at a bloodmobile which was located within the plant area. Donors were paid while donating their blood and for the time they spent in going to and from the bloodmobile. One employee was allergic to the adhesive tape used to cover the wound, and as a result had a general breaking-out all over his body, causing him to lose time from work.

Decision: This injury should not be included in the work injury rates. The committee concluded first that an illness due to adhesive tape could not be excluded on the basis of paragraph 5.14 since the members did not consider adhesive tape to be an antitoxin, a vaccine, or a drug. The committee concluded secondly that the donation of blood arose out of a civic duty rather than out of employment.

What Is Your Question?

Are there standards for measurement of finishes on wood surfaces?

No work is being done on finishes for wood surfaces. American Standard B46.1-1955, Surface Roughness, Waviness, and Lay, deals with the measurement of machined surfaces on metal.

Can you direct me to the proper source for information on all standards of interest to people in the field of engineering design?

No, unfortunately, there is no current index to organizations engaged in standards work nor is there any governmental agency that makes information available about organizations that set standards.

The National Directory of Commodity Specifications, published by the U. S. Department of Commerce in 1945, gave information on standards and specifications that came nearest to answering this question, but it is now very much out of date. The government has abandoned its work on this Directory and the American Standards Association is exploring the possibility of issuing a new directory. This is a formidable task, however, requiring funds for research and publication and no information concerning possible date of completion is available at present.

How can it be determined that a part — for example, measuring 0.5022 in. — is acceptable as being within the limits specified?

To determine whether the dimension of a part is or is not acceptable, the actual size of the part should be judged on the basis of Section 5 of the American Standard Preferred Limits and Fits for Cylindrical Parts, B4.1-1955. This section reads as follows:

"5. Acceptance of Parts.

"5.1 *Acceptability*. A part shall be acceptable if its actual size does not exceed the limits of size specified in numerical values on the drawing or in writing. It does not meet dimensional specification if its actual size exceeds those limits.

"5.2 *Reference Temperature*. The actual size of a part shall be considered to be that size which the part has at the International Standard Reference Temperature of 68 F (20 C)."

Are there any standards for scaffolds?

The subject of scaffolds is covered in Part 9 of the American Standard Safety Code for Building Construction, A10.2-1944. The standard is now under revision. It is expected that the committee will include requirements for panel-type metal scaffolding which has not been covered in the current edition.

FROM OTHER COUNTRIES

Members of the American Standards Association may borrow from the ASA Library copies of any of the following standards recently received from other countries. Orders may also be sent to the country of origin through the ASA office. Titles are given here in English, but documents are in the language of the country from which they were received. An asterisk * indicates that the standard is available in English as well. For the convenience of readers, the standards are listed under their general UDC classifications. In ordering copies of standards, please refer to the number following the title.

614.8 SAFETY MEASURES

Australia (SAA)

Industrial eye protection and personal eye protectors A.S. CZ.7-1956; Z.7-1956

Canada (CSA)

Code for the guarding of punch presses at point of operation Z142-1957

Germany (DNA)

Eye protective optical filters DIN 4646/7

United Kingdom (BSI)

Safety belts and harness BS 1397:1956

614.84 FIRE BRIGADE

Austria (ONA)

C-type firehose coupling ÖNORM F 2131

France (AFNOR)

Signs indicating locations of hydrants NF S 61-221

Semi-flexible and flexible hoses NF S 61-111

Germany (DNA)

Hand-operated fire extinguisher pump, bucket type DIN 14030

Hand fire extinguisher, general DIN 14406, Bl.1

Netherlands (HCNN)

Fire-hose coupling N 409

Suction basket V 1312

616.314 DENTISTRY, ODONTOLOGY

Australia (SAA)

Wrought gold for dental purposes A.S. T. 9-1956

Dental sticky wax A.S. T.10-1956

Dental inlay casting golds A.S. T.12-1956

Dental inlay casting wax A.S. T.14-1956

621.643 PIPES AND ACCESSORY PARTS

Italy (UNI)

Cast iron pressure pipes and fittings (21stds) UNI 3754/74

Japan (JISC)

2 stds for carbon- and alloy-steel tubes for structural purposes JIS G 3440/1*

Mexico (DGN)

Piping of aluminum B 79 - 1956

Tubes of poly-ethylene R 37 - 1956

Netherlands (HCNN)

Brass round back plates for watertaps V 2285

Poland

Metric pipe thread PN M-02033

Spain (IRATRA)

Crushing and flaring test of copper alloy tubes UNE 7100/1

Switzerland (SNV)

PVC tubes for liquids VSM 18380/1

Flanges, tong and groove VSM 18550

Flange gaskets VSM 18555

Union joints VSM 51210

Union of South Africa (SABS)

Fire hose couplings, connectors, branch pipe and nozzle connections 544-1956

USSR

Radiator tubing, seamless, flat-oval GOST 2936-56

Aluminum and aluminum alloy pipes GOST 1947-56

United Kingdom (BSI)

Copper alloy gate valves for general purposes BS 1952:1956

Copper alloy check valves for general purposes BS 1953:1956

Asbestos cement pressure pipes BS 486:1956

Compressed asbestos fiber jointing BS 2815:1957

Asbestos cement soil, waste, and ventilating pipes and fittings BS 582:1957

621.798 PACKING EQUIPMENT

Argentina (IRAM)

Tin cans for edible oil IRAM 6004

France (AFNOR)

Compression resistance test of packaging containers NF X 41-011

Test for resistance of packaging containers to salt fog NF X 41-013

Test for the efficiency of insecticides for protection of wooden packing containers NF X 41-506

13 stds for packing material, boxes, crates for fruits and vegetables NF H 21 - 003, 009/021

Drum testing of rigid packings PN X 41 - 010

India (ISI)

Kegs for paints IS 618 - 1956

United Kingdom (BSI)

Laundry hampers BS 2695:1956

Containers and notes for filmstrips BS 2698:1956

Returnable wooden containers for cucumbers BS 2748:1956

622.6 MINING TRANSPORT. HOISTING AND HAULAGE

Germany (DNA)

Bumpers for surface mining cars DIN 34482

Italy (UNI)

Conveyor belts for mining. Characteristics and tests UNI 3780/8

Roumania (CSS)

Ore transporting mine wagon STAS 5034-55

Spain (IRATRA)

Rail for mining tracks UNE 22022/3

629.12 SHIPS AND SHIPBUILDING

France (AFNOR)

19 stds for different ship equipment such as: deck plates, cleats, bollards plain and roller, etc. NF J 37-530, -532, 230, 232/8, -244, -246, -248, -250, -260, 262/5

Self-closing type of water-ballast tank manhole cover NF J 31-510

5 stds for different types of check-valve relieve outlets NF J 42-200, -210, -220, -230, -240

55 stds for commercial marine pipes and pipe fittings, flanged types for nominal pressures from 6 to 64 kg/cm² Series NF J 22-800 and NF J 23-800

Germany (DNA)

Nonferrous check valves, nominal diam 6 to 32 and nominal pressure 40 (4 stds) DIN 86512/5

Nonferrous shut-off valves, nominal diam 6 to 32 DIN 86521/2,- 527

3 stds for details of weldable shut-off valve DIN 86650, Bl.1/3

4 stds for details of self-closing check valve DIN 87101/3, 87106, Bl. 2

Details of ships pipeline control mechanisms, general survey DIN 87300

Watertight bushings for cables DIN 89280, Bl.3

Pipe joints, screwing and soldering DIN 86140/1

Pipe nipples, soldering and welding DIN 86148

Cast steel elbows, 50-150 mm i.d. nominal pressure 10 DIN 86066

6 stds for details of self-closing check-valves and accessories DIN 87101 Bl.2, 87104 Bl.1 & 2, 87105/7

Shut-off valve, nominal pressure from 6 to 32 kg/cm² DIN 86511, Bl.1/2

Check valve, nominal pressure from 6 to 32 kg/cm² DIN 86512/3

5 stds for details of marine valves DIN 86523/6

Steel bed springs, marine type DIN 81830/2

Japan (JISC)

Indicators for watertight sliding door JIS F 2315

Ship's piston pump, hand operated JIS F 3201

Wire reel JIS F 3430

Marine boiler water gage JIS F 5601

Diagram of standard velocities in ship's pipe lines JIS F 7101

Marine type table lamp JIS F 8419

10 stds for different types of globe valves JIS F 7315/6, 7321/8

4 stds for marine boiler water gage JIS C 7211/4

5 stds for inspection of dashboard instruments JIS D 1610/4

2 stds for wooden and steel deck ladders JIS F 2611, 2603

3 stds for marine forged steel valves and cocks JIS F 7341/3

Water-tight sliding door JIS F 2314

Non water-tight steel door JIS F 2305

3 stds for switches and receptacles for marine use JIS F 8833, 8840/1

Marine cocks with lock JIS F 7390

7 stds for electric appliances for marine use JIS F 8801/3, 8811/2, 8831/2

Netherlands (HCNN)

Round sidelights in ships N 3052

Poland

17 stds for paints for ships PN W-81016, -19, -21, -25, -29/38, -40/1, -43
Dials for ships' telegraphs PN W-77501-1954

USSR

Nails for wooden ships GOST 1991-54
Metal and rubber journal used in shipbuilding GOST 7199-54
Cast iron fittings for ship pipelines for temperatures up to 300°C GOST 7418-55
Mechanical engine room telegraph GOST 7405-55

631.3 AGRICULTURAL TOOLS AND MACHINERY

Argentina (IRAM)

3 stds for agricultural machines IRAM 8001/3

France (AFNOR)

Rims for pneumatic wheels of tractors and cultivators NF U 12-002
Pneumatic tires for tractors and cultivators NF U 12-001

Japan (JISC)

2 stds for pedal-and power threshers JIS B 9101/2
Power sprayers JIS B 9113

United Kingdom (BSI)

Agricultural mower parts BS 1562:1957

632 PHYTOPATHOLOGY

Canada (CSA)

Common names for pest control chemicals Z143-1956

USSR

Sprayers and dusters, test methods GOST 7739-55

643/645 HOUSEHOLD EQUIPMENT

Bulgaria

Enameled household ware BDS 1185-55

France (AFNOR)

15 stds for different kitchen utensils NF D 21-302/3, -305/7, -309/10, -312, -401/6, -442
Aluminum saucepans NF D 21-304
2 types of metal folding beds NF D 63-759/760
Metal stoves for liquid fuel NF D 35-385

United Kingdom (BSI)

Sheet linoleum (calendered types) and cork carpet BS 810:1957

648 CLEANING. LAUNDRY

Israel (SII)

Synthetic detergents S.I. 139

United Kingdom (BSI)

Recommendations for the use of detergents in the dairying industry BS 2756:1956
Mops for local authorities and hospitals BS 2764:1956

651 OFFICE ORGANIZATION AND MANAGEMENT

France (AFNOR)

Identification cards and photographs (2 stds) NF Z 12-019/1
Sizes, color, weight of paper used for different office supplies NF Z 10-001

Spain (IRATRA)

Paper sizes, series "A" UNE 1012
Envelope sizes UNE 1014
"Window" envelope sizes UNE 1017
Letterheads in sizes A4, A5, A6 UNE 1022

United Kingdom (BSI)

Folders and files BS 1467:1957

658.5 INTERNAL ORGANIZATION. PRODUCTION CONTROL.

Japan (JISC)

Control chart methods JIS Z 9021

Sweden (SIS)

2 stds for statistical quality control methods. Introduction. Sampling. Inspection SMS 1801/2
24 different tables pertaining to statistical quality control SMS 1805/28

665.1/.3 VEGETABLE AND ANIMAL OIL, FATS, AND WAXES

Argentina (IRAM)

Commercial stearic acid IRAM 5554
Commercial oleic acid IRAM 5555
Oleins IRAM 5542

India (ISI)

Cashewnut shell liquid (CNSL) IS 840-1956

Israel (SII)

Olive Oil S.I. 191

666 GLASS AND CERAMIC INDUSTRY

France (AFNOR)

3 stds for different types of bottles NF B 31-017, -020/1

Norway (NSF)

Bottle for detergents, white spirit, etc. NS 956
3 stds for threaded necks for bottles and jars NS 592/4A

Spain (IRATRA)

3 methods for testing concrete for consistency UNE 7102/4

668.8/.9 LIME. MORTAR. CEMENT. CONCRETE

Japan (JISC)

Lime for finishing use JIS A 6902
Dolomite plaster JIS A 6903
Gypsum plaster JIS A 6904

Norway (NSF)

Portland cement: sampling, testing, delivery conditions NS 425 B

Spain (IRATRA)

Chemical analysis of lime and limestone UNE 7095

Union of South Africa (SABS)

Precast concrete paving slabs SABS 541-1956

Yugoslavia (JUS)

Cement JUS B.C1.010

668.3 ADHESIVES. GLUES

Mexico (DGN)

Transparent cellulose adhesive tape DGN R 36-1956

668.5 ESSENTIAL OILS. PERFUMERY. COSMETICS

India (ISI)

Ginger oil IS 761-1955

Israel (SII)

Essential oils from lemons and grapefruits S.I. 180/1

Portugal (IGPAI)

3 stds for the determination of essential oil content in different plants P 156/8

675 LEATHER INDUSTRY

Bulgaria

2 stds for raw horse and cattle hides BDS 239, 486

India (ISI)

Chrome belt lace leather IS 575-56
Sinew guts IS 827-1956

United Kingdom (BSI)

Glossary of leather terms BS 2780:1956
E. I. sheep skin leather for gas meter diaphragms BS 2797:1956

683 HARDWARE. IRONMONGERY

Austria (ONA)

Hinges for wooden and steel windows and doors ÖNORM B 5344
4 stds for different door locks ÖNORM B 5350/3

France (AFNOR)

Locks, definition, classification and designation NF P 26-101

India (ISI)

Brass drawer locks, cupboard locks and box locks IS 729-1956

687 CLOTHING, READYMADE. SEWING MACHINES, ETC

Japan (JISC)

4 stds for domestic sewing machines and accessories JIS B 9011/2, 9020, 9022

United Kingdom (BSI)

Industrial overalls for general purposes: Part 2. Overalls made from nylon and polyester fiber fabrics BS 1907: Part 2:1956

688 FANCY GOODS. TOYS, ETC

Germany (DNA)

Rails for model railways DIN 58611

United Kingdom (BSI)

Moulded plastic ash trays BS 2766:1956

69 BUILDING INDUSTRY

Union of South Africa (SABS)

Comprehensive Model Building Regulation:
Chapter 4, Foundations S.A.B.S. 025-1955
Chapter 9, Miscellaneous materials and constructions S.A.B.S. 030-1955

United Kingdom (BSI)

Refuse chutes for multi-story buildings BS 1703:1957
Valves and unions for radiators (low pressure hot water) BS 2767:1956
Methods of test for air filters used in air-conditioning and general ventilation BS 2831:1957

691 BUILDING MATERIALS

Canada (CSA)

Masonry cement CSA A8-1956

Japan (JISC)

Tiles for export: Classification and specification JIS A 5201

Netherlands (HCNN)

2 stds for testing concrete flooring tiles V N 501 and 502

Portugal (IGPAI)

Ceramic water pipes P-144
Test for ductility of bituminous materials P-148

695 ROOFING. SLATING. TILING

Belgium (IBN)

Slate roofing, asbestos-cement roofing NBN 333

Hungary (MSZH)

Various types of Hungarian roofings MNOSZ 15038

India (ISI)

Fixing accessories for corrugated sheet roofing IS 730-1956

BOOKS.....

Short Contents List of Periodicals or Other Documents. *ISO Recommendation R 18. April 1956. First edition. International Organization for Standardization, 1 rue de Varembé, Geneva, Switzerland. (Copies available from the American Standards Association, 70 East 45 Street, New York 17, N.Y.) 50 cents.*

This recommendation is one of the international documents being developed by ISO Technical Committee 46 on Documentation as a guide to editors and publishers. Purpose of the committee's work is to outline principles concerning the type of data that should be included in a publication to help the reader find the information he wants. The *Short Contents List,* which is the subject of ISO Recommendation R 18, is usually called the "table of contents" in the United States.

Most important recommendation contained in the ISO Recommendation is the suggestion that when an article is to be continued in a subsequent issue, the table of contents indicate that this is the case.

Another important recommendation is that the table of contents always appear in the same position in each issue.

Guide to the Use of Preferred Numbers and of Series of Preferred Numbers. *ISO Recommendation R 17 April. 1956. First edition. International Organization for Standardization, 1 rue de Varembé, Geneva, Switzerland. (Copies available from the American Standards Association, 70 East 45 Street, New York 17, N.Y.)* $1.20.

Approved by 26 of the 34 ISO member-bodies, this guide is intended to help put the ISO Recommendation R 3 on preferred numbers into use. Recommendation R 3 provides five series of numbers in geometrical progression, offering a logical increase in size. As in the American Standard on Preferred Numbers, Z17.1-1936, R 1946, the 5, 20, 40, and 80 series are recommended. The American Standard, however, also includes a 10 series. ISO Recommendation R17 explains the basis on which these standard series have been developed, characteristics of the geometrical progression, and how the geometrical progressions have been rounded off in the ISO Series of Preferred Numbers. Suggestions are also made on how to put the preferred numbers into use and how calculations should be made in using the preferred numbers. Examples of the application of the Preferred Numbers Series include ratings in amperes for standard electric currents, diameters of bare annealed copper wire, rotating speeds of machine-tool spindles, lifting capacity of cranes, and diameters of cylinders for hydraulic equipment.

Standards for Plugs and Socket-Outlets for Domestic and Similar General Use. *IEC Publication 83. First edition. International Electrotechnical Commission, 1 rue de Varembé, Geneva, Switzerland. 32 pages. Heavy paper cover. (Copies available from the American Standards Association, 70 East 45 Street, New York 17, N.Y.)* $2.40.

Dimensions of plugs and outlets for electrical appliances, used in three different systems throughout the world, are given in this new IEC publication. These three systems are identified as Group A, standards approved by the American Standards Association; Group B, standards of the British Standards Institution; and Group C, standards of the International Commission on Rules for the Approval of Electrical Equipment (CEE).

Group A plugs and socket-outlets are used in Canada and the United States; Group B in India and the United Kingdom; and Group C in Belgium, Denmark, France, Germany, Italy, Japan, The Netherlands, Norway, and Sweden. Anyone planning to take electric razors, electric irons, or similar equipment, with their electric cords and plugs, on a trip to these countries will find the information in this book valuable as a guide to purchasing the proper adapters.

The IEC reports that it hopes publication of this survey will help to eliminate some of the types of plugs and outlets now in use so that complete unification may be gradually attained. The publication contains 18 standards sheets, and IEC expects to issue five additional standards sheets which are still under consideration.

Handbook for Small Sawmill Operators. *ASME Standard 109. 1956. 5½ x 8½. 62 pp. Heavy paper cover. The American Society of Mechanical Engineers, 29 West 39 Street, New York 18, N. Y.* $3.00.

How to attain and maintain accuracy of cutting is the theme of this booklet. Its four chapters, on Machinery, Saws, Mill Setup, and Operation and Trouble Shooting, contain specific recommendations and suggested procedures for improving performance.

A small sawmill is considered to be one producing less than 20,000 board feet per day.

The *Handbook* was prepared by the Logging and Milling Committee of the Forest Products Research Society at the request of ASA Sectional Committee B66. The sectional committee, sponsored by ASME, was organized at the request of the Office of Defense Mobilization of the U.S. Government to consider "establishment of performance standards for equipment at small

sawmills with a view to securing increased precision of sawing and minimum waste of material."

James S. Bethel, director of the Wood Products Laboratory, North Carolina State College, notes that a substantial proportion of the lumber produced in America is turned out in small sawmills and that much of this has been found to be inaccurately cut. Lumber which is too thin, he notes, is detrimental to the interest of the producer since it may be unsuitable for the purpose of the customer; lumber which is too thick, on the other hand, reduces the footage obtainable from a log and may still not be suitable for customer use. The *Handbook* says that at least 96 percent of boards produced by a properly maintained mill should be within an eighth of an inch of the desired thickness.

Thomas D. Perry, consulting engineer of Moorestown, New Jersey, was chairman of the committee that prepared the *Handbook*.

Drawings and Dimensions. *Stanley Parker, B.E.M. With Foreword by F.H. Rolt, O.B.E. D.Sc. Published by Sir Isaac Pitman and Sons Limited, Pitman House, Parker Street, Kingsway, London, WE 2 (Pitman Publishing Company, 2 West 45th Street, New York 17, N.Y.)* $7.00.

Review by George Noble, Standards Engineer, Dominion Engineering Works, Montreal, Quebec.

Literature dealing with the complex subject of dimensioning as applied to engineering drawings is meagre indeed. It has previously been confined to a chapter or section in textbooks on Engineering Drawing and Mr. Parker's book is the first major coverage of this most important subject.

The author, an internationally known authority on this subject, has been actively engaged in the development of the positional and geometric tolerance system which has been, for some ten years, the subject of discussion and agreement between committees of the three ABC countries (America, Britain, Canada).

A great many of the details of positional and geometric toleranc-ing as at present appearing in British Standard 308-1953, CSA Standard B78.1-1954, U.S. MIL STD-8a-1953, SAE standards (AERO-AUTO), and in the forthcoming new edition of the proposed American Standard Y14.5, are due in no small measure to the untiring and dedicated efforts of Stanley Parker.

This book traces the evolution of dimensioning and dimensioning systems, from early steam age jobbing shop production, through all the stages to mass, interchangeable-part manufacture, and highlights the progress made in this art. Mr Parker, in the course of this development, has condensed a great number of his conclusions into the form of concise rules, which make a sound basis for use of the book as an educational text.

As stated by Dr Rolt in the excellent foreword, this volume is of value alike to the beginner and the engineer with a lifetime experience and is certainly a must for those to whom falls the task of introducing the new concept of Positional and Geometric Tolerancing to industry at both drawing office and shop levels.

Your Nominations Are Invited

for the Standards Medal

for the Howard Coonley Medal

ALL members of the American Standards Association are invited to send in nominations for the 1957 recipients of the Howard Coonley Medal and the Standards Medal. Nominations should be in the hands of the Managing Director of the Association before June 30, 1957.

The Howard Coonley Medal is awarded each year to an executive who has rendered a great service in advancing the national economy through voluntary standardization. Recipients have been The Honorable Herbert Hoover, Mr Howard Coonley, Mr William Batt, Senator Ralph E. Flanders, Mr Thomas D. Jolly, Dr Harold S. Osborne, and Frederick S. Blackall, Jr.

The Standards Medal is awarded to an individual who has shown leadership in the development and application of voluntary standards. It has been awarded to such well-known leaders in standardization as Frank O. Hoagland, Perry L. Houser, the late Dr P. G. Agnew, Dr John Gaillard, James G. Morrow, and the late Charles Rufus Harte.

Nominations should be submitted in quadruplicate on plain paper without indication as to the source of the nomination. Each nomination should be accompanied by a letter of transmittal.

In order to provide complete and comparable data, forms can be obtained from ASA for filing nominations.

NEWS BRIEFS.....

• W. A. Steele, vice-president in charge of operations, Wheeling Steel Corporation, Wheeling, West Virginia, is now a member of the American Standards Association's Board of Directors. Mr Steele was nominated by the American Iron and Steel Institute to complete the term of office of Van H. Leichliter, who was elected in 1955 as the Institute's nominee. Mr Leichliter is now a member of the Board of Directors ex officio as vice-president of the American Standards Association. Mr Steele will serve on the Board until December 31, 1958.

Mr Steele is past president of the Eastern States Blast Furnace and Coke Oven Association and is a member of the American Institute of Mining, Metallurgical, and Petroleum Engineers as well as of the American Iron and Steel Institute.

He has been associated with Wheeling Steel since 1943, his first position there being that of General Manager, Benwood (West Virginia) Works. In 1950, he was made General Manager of the Steubenville (Ohio) Works. He was elected vice-president in charge of operations and a member of the board of directors on April 27, 1955.

• The Consumer Goods Standards Board of the American Standards Association has re-elected its chairman and second vice-chairman and elected a new first vice-chairman and third vice-chairman.

Dr Ephraim Freedman, director of the Bureau of Standards of R. H. Macy and Company, New York, is the re-elected chairman. He has been an officer of the Board since 1953 and chairman since 1954.

Dr E. Freedman

P. J. Fynn

A. E. Johnson

Dr Williamson

P. J. Fynn, director of the Research Laboratory, J. C. Penney Company, New York, is the newly elected first vice-chairman. He is a representative of the National Retail Dry Goods Association. He brings a background of work with other organizations to the Board. He is past chairman of the Washfastness Committee of the American Association of Textile Chemists and Colorists, and has served as secretary of the AATCC End Use Committee, and as a member of its Technical Committee on Research. He is a member of the American Society for Testing Materials; the American Association of Textile Technologists; and the American Chemical Society.

Albert E. Johnson, director of trade relations, Better Fabrics Testing Bureau, National Institute of Cleaning and Dyeing, New York, was re-elected second vice-chairman. Mr Johnson represents the Institute on the Consumer Goods Standards Board and has been an officer of the Board since 1953.

The new third vice-chairman is Dr Lucille Williamson, Professor of Economics of the Household and Household Management, New York State College of Home Economics, Cornell University. In her teaching she applies chemistry and physics to the selection and use of household appliances as they are used in the home. The chemistry of detergents is one of her special interests. Dr Williamson represents the American Home Economics Association on the ASA Standards Council as well as on the Consumer Goods Standards Board.

• E. V. Sayles, vice-president, and administrative and development engineer, of Commonwealth Associates, Inc, Jackson, Michigan, has been named by the Electric Light and Power Group as its representative on the ASA Standards Council. Mr. Sayles is well acquainted with ASA work, having been a member of Sectional Committee C57 on Transformers, Regulators, and Reactors since 1950 and of the C57 Subcommittee on Power and Distribution Transformers since 1956.

He brings to the work of the Standards Council an impressive experience in activities of industry-wide and national importance. A member of the American Institute of Electrical Engineers since 1923, he has held the grade of Fellow since 1938. He has been a member of the Institute's Board of Examiners, chairman of the Michigan Section, and a member of the Architects, Professional Engineers, and Land Surveyors Committee on Registration for the State of Michigan.

A member of the EEI-NEMA Joint Committee on Standards for Distribution Transformers since 1937, he has been EEI chairman of the committee since 1948. He has also been a member of the EEI Transmission and Distribution Committee since 1935; of the Engineering and Operating Division

Executive Committee since 1955; and of the Codes and Standards Correlating Subcommittee of the Engineering and Operating Division Executive Committee since early this year.

He was active in the Association of Edison Illuminating Companies as chairman of the EEI-AEIC Joint Committee on Branch Circuit Protection from 1948-1950.

Mr Sayles was a member of the United States Electric Utilities Team that reported on the British Electricity System in 1952.

Charles M. Heinen

• Charles M. Heinen, assistant chief engineer, Materials Laboratories, Chrysler Corporation, Detroit, has been named representative of the Society of Automotive Engineers on the Standards Council of the American Standards Association. Mr. Heinen has been with Chrysler Corporation for 23 years. He is vice-chairman of the Vehicle Combustion Products Subcommittee of the Automobile Manufacturers Association and chairman of the CRC Group on Combustion of Exhaust Gases. In addition to his "smog" work, he is active in the field of fuels and lubricants. He is chairman of the Society of Automotive Engineers' Fuels and Lubricants Techanical Committee and chairman of the CLR Vehicle Lubricants Division.

• The University of California is using ASA's publication "The 400 American Standards in the Electrical Field" in the electrical and home planning courses of its Department of Industrial Arts at Santa Barbara, California.

• Henry St Leger, General Secretary of the International Organization for Standardization, initiated the idea of the new International Center at Geneva, Switzerland, according to an article published in the *Geneva Magazine* recently. Mr. St. Leger has been president of the Federation of Geneva International Institutions for the past six years. The ISO found itself in the same housing squeeze as did many of the other international organizations, with headquarters in Geneva, including the World Health Organization, the World Meteorological Organization, the International Telecommunication Union, the European Council for Nuclear Research, the International Bureau of Education, and many others. Mr St Leger originated the idea of constructing an International Center capable of housing the offices of all the international organizations in Geneva that did not yet possess headquarters of their own.

The new International Center, erected opposite the entrance to the Palais des Nations, was opened in November, 1956. It consists of

INTERNATIONAL ELECTROTECHNICAL COMMISSION

Meets in Moscow, USSR, July 2-12

Committees scheduled to meet are as follows:

Committee	*TC No.*	*July*
Committee of Action	C.A.	8 and 12
Rotating Machinery	2	4 through 6
Electric Traction Equipment	9	8 through 10
International Mixed Committee on Electric Traction Equipment	CMT	11
Switchgear and Controlgear	17	11
High Voltage Switchgear and Controlgear	17A	8 through 11
Low Voltage Switchgear and Controlgear	17B	2 through 5
Electric Cables	20	2 and 3
Semi-conductor Rectifiers	22-2	2 through 12
Lamps and Related Equipment	34	12
Lamps	34A	8 and 9
Lamp Caps and Holders	34B	9 and 10
Auxiliaries for Fluorescent Lighting	34C	11 and 12
Primary Cells and Batteries	35	8 through 10
Insulated Bushings	36-1	11 and 12
Lightning Arresters	37 Experts	2 and 4

about 250 offices divided among six floors. On the ground floor the Center is equipped with a secretariat, a foreign exchange office, a restaurant, and a large conference room.

Both the International Organization for Standardization and the International Electrotechnical Commission now have their offices in the new Center.

• Cyril Ainsworth, Technical Director of the American Standards Association, has been reappointed chairman of the American Transit Association's Committee on American Transit Safety Awards. Mr. Ainsworth is a well-known figure in the safety field, having joined ASA's staff in 1930 to take charge of its work on safety standards. He has served as president of the American Museum of Safety, and as a U.S. member of the International Accident Prevention Committee of the International Labor Organization. In 1952 he was one of a panel of experts on safety named by the International labor Organization to attend a labor relation seminar in India. He has also served as secretary and director of the Greater New York Safety Council.

The Lomonosov University building, Lenin Hills, Moscow, USSR, will be the scene of the 1957 meetings of technical committees of the International Electrotechnical Commission, July 2-12. Fifteen committees, in addition to the IEC Committee of Action, have scheduled meetings this year. The reception center and technical secretariat of the meeting will have headquarters at Moscow University.

The last general meeting of the IEC was held in Munich, Germany, last summer.

In addition to the technical work, special tours for the delegates and programs for the ladies have been arranged by the standards committee of the USSR. The visits of technical interest will include tours of the USSR Electrotechnical Institute; the Moscow Energetic Institute; the Laboratories of the Lighting Research Institute; Thermal Power Station N 11 Mosenergo; Thermal Power Station N 20 Mosenergo; 400 kv substation at Noguinsk; electric traction installation; the Moscow Cable Works "Moscabel"; and the Television Center.

Nontechnical visits will include a sightseeing tour of Moscow and the Underground Railway; a visit to the Kremlin and to the Lenin and Stalin Mausoleum; visits to the Lenin State Library, the Tretiakov Picture Gallery, the Industrial and Agricultural Exhibition, the Arkhangelskoe Museum, the Museum of Fine Arts, a kindergarten, and the Pioneer Camp near Moscow; an excursion to the Ostankino Museum; and visits to the Troitsko-Serguievskaja Lavra Monastry, and to a kolkhoz or a sovkhoz near Moscow.

Two tours will be made away from Moscow, one to Leningrad by train and the other to Zaporozhye by air. The trip to Leningrad will include a tour of the city with visits to the Direct-Current Research Institute, the "Elektrosila" Electrical Machinery Works, the "Svetlana" Electric Lamp Factory, and the Ermitage Museum. This visit will also include an excursion to Pietrodvorez.

During the trip to Zaporozhye, the Lenin Hydro-electric Power Station on the Dniepr and the Transformer Works will be visited.

The United States National Committee of IEC is now making arrangements for representation at this IEC general meeting. At this time it appears that the USNC will be represented by approximately 25 delegates accompanied by perhaps 10 of their ladies.

GAILLARD SEMINAR ON INDUSTRIAL STANDARDIZATION

New York, June, 1957

The next Gaillard Seminar on Industrial Standardization will be held June 24 through 28, 1957, in the Engineering Societies Building, New York City. There will be ten conferences, one every morning and afternoon, Monday through Friday. Held twice a year since 1947, the Gaillard Seminars are intended to assist company managements in organizing their standardization work and training staff men in the art of writing specifications. The total attendance so far has been 333 men from 182 organizations. Forty-five of these have sent delegates to two or more sessions. One company has been represented at eight seminars by a total of 15 men.

Delegates from 157 companies have attended the Gaillard Seminars. The other conferees were representatives from trade associations; engineering societies; the American Standards Association and four foreign national standards bodies; the Army, Navy, and Air Force; the National Bureau of Standards; the Mellon Institute; the Armour Research Foundation; the Massachusetts Institute of Technology; the Universities of California and Illinois; and the Hydro-Electric Power Commission of Ontario.

Dr Gaillard formerly was a member of the ASA staff and a lecturer at Columbia University. In 1954 the ASA awarded him the Standards Medal "for leadership in the development and application of voluntary standards." He is now a management counsel specializing in advice on standardization problems.

For details about the June, 1957, seminar in New York and registration, write to Dr John Gaillard, Box 273, Route 1, Briarcliff Manor, N.Y. Places may be reserved in advance.

AMERICAN STANDARDS UNDER WAY

Status as of March 27, 1957

Legend — *Standards Council* — Approval of Standards Council is final approval as American Standard; usually requires 4 weeks. *Board of Review*— Acts for Standards Council and gives final approval as American Standard; action usually requires 2 weeks. *Standards Board* — Approves standards to send to Standards Council or Board of Review for final action; approval by standards boards usually takes 4 weeks. Note—Send check when ordering standards listed as published to avoid service charge for handling.

BUILDING AND CONSTRUCTION

In Standards Board

Abrasion of Coarse Aggregate by Use of the Los Angeles Machine, Method of Test for, ASTM C 131-55; ASA A37.7- (Revision of ASTM C 131-51; AASHO T96-51; ASA A37-1954)

Distillation of Tars and Tar Products, Method of Test for, ASTM D 20-56; ASA A37.9- (Revision of ASTM D 20-52; AASHO T52-52; ASA A37.9-1954)

Sieve Analysis of Mineral Filler, Method of Test for, ASTM D 546-55; ASA A37.14- (Revision of ASTM D 546-41; AASHO T37-42; ASA A37.14-1943)

Unit Weight of Aggregate, Method of Test for, ASTM C 29-55; ASA A37.16- (Revision of ASTM C 29-42; AASHO T19-54; ASA A37.16-1948)

Making and Curing Concrete Compression and Flexure Test Specimens in the Field, Method of, ASTM C 31-55; ASA A37.17- (Revision of ASTM C 31-49; ASA A37.17-1951)

Compressive Strength of Molded Concrete Cylinders, Method of Test for, ASTM C 39-56T; ASA A37.18- (Revision of ASTM C 39-49; AASHO T22-49; ASA A37.18-1951)

Organic Impurities in Sands for Concrete, Method of Test for, ASTM C 40-56T; ASA A37.19- (Revision of ASTM C40-48; ASA A37.19-1951)

Soundness of Aggregates by Use of Sodium Sulfate or Magnesium Sulfate, Method of Test for, ASTM C 88-56T; ASA A37.23- (Revision of ASTM C 88-46T; AASHO T104-46; ASA A37.23-1948)

Lightweight Pieces in Aggregate, Method of Test for, ASTM C 123-53T; ASA A37.25- (Revision of ASTM C 123-44; AASHO T113-45; ASA A37.25-1948)

Clay Lumps in Natural Aggregates, Method of Test for, ASTM C 142-55T; ASA A37.28- (Revision of ASTM C 142-39; AASHO T112-42; ASA A37.28-1948)

Sampling Fresh Concrete, Method of, ASTM C 172-54; ASA A37.30- (Revision of ASTM C 172-52T; ASA A37.30-1954)

Terms Relating to Materials for Roads and Pavements, Definitions of, ASTM D 8-55; ASA A37.33- (Revision of ASTM D 8-52; ASA A37.33-1954)

Emulsified Asphalts, Method of Testing for, ASTM D 244-55; ASA A37.42- (Revision of ASTM D 244-49; AASHO T59-49; ASA A37.42-1951)

Distillation of Cut-Back Asphaltic Products, Method of Test for, ASTM D 402-55; ASA A37.45- (Revision of ASTM D 402-49; ASA A37.45-1951)

Preformed Expansion Joint Fillers for Concrete (Nonextruding and Resilient Types), Specification for, ASTM D 544 - 49; ASA A37.49- (Revision of ASTM D 544-41; AASHO M58-42; ASA A37.49-1948)

Emulsified Asphalt, Specification for, ASTM D 977-53; ASA A37.55- (Revision of ASTM D 977-49; ASA A37.55-1951)

Cotton Mats for Curing Concrete Pavements, Specifications for, AASHO M73-49; ASA A37.60- (Revision of AASHO M73-38; ASA A37.60-1948)

Subgrade Paper, Specifications for, AASHO M74-55; ASA A37.61- (Revision of AASHO M74-38; ASA A37.61-1948)

Quality of Water to be Used in Concrete, Method of Test for, AASHO T26-51; ASA A37.62- (Revision of AASHO T26-36; ASA A37.62-1948)

Ready-Mix Concrete, Specification for, ASTM C 94-55T; ASA A37.69- (Revision of ASTM C 94-48; ASA A37.69-1951)

Air Content of Freshly Mixed Concrete by the Pressure Method, Method of Test for, ASTM C 231-56T; ASA A37.70- (Revision of ASTM C 231-54; ASA A37.70-1954)
Sponsor: American Society for Testing Materials

Reinforced Concrete, Building Code Requirements for, ACI 318-56; ASA A89.1- (Revision of ACI 318-51; ASA A89.1-1951)
Sponsor: American Concrete Institute

Reaffirmation Requested

Residue of Specified Penetration, Method of Test for, ASTM D 243-36; AASHO T56-42; ASA A37.13-1943, R 1948
Sponsor: American Society for Testing Materials

ELECTRIC AND ELECTRONIC

American Standards Published

Schedules of Preferred Ratings for Alternating and Direct-Current Low Voltage Air Circuit Breakers, C37.16-1956 $0.30

Preferred Pickup Calibrations and Trip Delay Settings for Alternating- and Direct-Current Low Voltage Air Circuit Breakers, C37.17-1956 $0.30
Sponsor: Electrical Standards Board

American Standards Approved

Cord Sets and Power - Supply Cords, Standards for Safety, C33.3-1957 (Revision of C33.3- 1956)
Sponsor: Underwriters' Laboratories

Focal Spot Size of Diagnostic X-Ray Tubes (not exceeding 150 pkv), Method of Measurement of, Fed Std 83; ASA C90.1-1957
Requested by: Federal Supply Services, General Services Administration

In Standards Board

Conducted Interference Output of Broadcast and Television Receivers in the Range of 300 KC to 25 MC, Methods of Measurement, 56 IRE 27.S1; ASA C16.25a- (as a supplement to ASA C16.25-1955)

Terms on Facsimile, Definitions of, 56 IRE 9.S1; ASA C16.30-
Sponsor: Institute of Radio Engineers

Electrically Heated Pads and Bedding, Safety Standard for, C33.7-
Sponsor: Underwriters' Laboratories

Withdrawal Being Considered

Tubular Steel Poles for Electric Line Construction, Specifications for, C13-1926
Sponsor: American Transit Association

GAS BURNING APPLIANCES

American Standards Published

Domestic Gas Ranges, Approval Requirements for, Volume II, Built-in Domestic Cooking Units, Z21.1.2-1956 $2.00

Gas Counter Appliances, Approval Requirements for, Z21.31-1956 $2.00
Sponsor: American Gas Association

MATERIALS HANDLING

Standards Submitted

55-Gallon (U.S.) Tight Head Universal Drum ICC-17E, MH2.1-

55-Gallon (U.S.) Full Open Head Universal Drum, MH2.2-

55-Gallon (U.S.) Tight Head Universal Drum ICC-5B, MH2.3-

55-Gallon (U.S.) Tight Head Universal Drum ICC-17C, MH2.4-

55-Gallon (U.S.) Full Open Head Universal Drum ICC-17H, MH2.5-

30-Gallon (U.S.) Tight Head Universal Drum ICC-17E, MH2.6-

16-Gallon (U.S.) Tight Head Universal Drum, MH2.7-

16-Gallon (U.S.) Full Open Head Lug Cover Universal Drum, MH2.8-

5-Gallon (U.S.) Tight Head Universal Drum ICC-17E, MH2.9-

5-Gallon (U.S.) Lug Cover Universal Pail, MH2.10-

Submitted by: Packaging Institute

MATERIALS AND TESTING

In Standards Board

Structural Steel for Locomotives and Cars, Specification for, ASTM A 113-56; ASA G39.1- (Revision of ASTM A 113-54; ASA G39.1-1956)
Sponsor: American Society for Testing Materials

Standard Submitted

Steel for Bridges and Buildings, Specifications for, ASTM A 7-56T; ASA G24.1- (Revision of ASTM A 7-55T; ASA G24.1-1956)
Sponsor: American Society for Testing Materials

MECHANICAL

American Standard Approved

Diamond Wheel Shapes, Identification Code for, B74.1-1957
Sponsor: Grinding Wheel Institute

In Standards Board

Carbon and Alloy-Steel Nuts for Bolts for High-Pressure and High-Temperature Service, Specification for, ASTM A 194-56T; ASA G38.1- (Revision of ASTM A 194-55T; ASA G38.1-1956)
Sponsor: American Society for Testing Materials

NUCLEAR ENERGY

In Standards Board

Glossary of Terms in Nuclear Science and Technology, N1
Submitted by: National Research Council

OFFICE EQUIPMENT

American Standard Published

Ring, Memo, and Post Binder Sheet Sizes and Ring and Post Data, Specifications for, NOMA N4.3-1954; ASA X2.4.3-1956 $0.25
Sponsor: National Office Management Association

PHOTOGRAPHY

American Standards Published

Photographic Dry Plates (Inch and Centimeter Sizes), Dimensions for, PH1.23-1956 $0.25
Gives dimensions and tolerances for photographic dry plates in both inch and centimeter sizes. Requirements for squareness are also covered.

Film Packs, Dimensions for, PH1.26-1956 $0.25
Gives dimensions and tolerances for film packs.

Spooling Photographic Paper for Recording Instruments, Requirements for, PH1.27-1956 $0.25
Specifies certain physical properties of rolls of silver halide sensitized photographic paper to be used in any type of recording equipment.

Melting Point of a Nonsupport Layer of Films, Plates, and Papers in Distilled Water, Method for Determining, PH4.11-1956
Establishes the test method for determining the temperature at which a photographic emulsion or other nonsupport layer of film, plate or paper starts to melt in a rising-temperature distilled water bath.
Sponsor: Photographic Standards Board

In Standards Board

Projected Image Area of 16mm Motion-Picture Film, PH22.8- (Revision of Z22.8-1950)
Projected Image Area of 8mm Motion-Picture Film, PH22.20- (Revision of Z22.20-1950)
16-Tooth 35mm Motion-Picture Projector Sprockets, PH22.35- (Revision of Z22.35-1947)
Photographic Sound Record on 16mm Prints, PH22.41- (Revision of Z22.41-1946)
Sponsor: Society of Motion Picture and Television Engineers

PIPE AND FITTINGS

American Standard Approved

Stainless Steel Pipe, B36.19-1957 (Revision of B36.19-1952)
Sponsors: American Society of Mechanical Engineers; American Society for Testing Materials

In Standards Board

Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves, and Parts for High-Temperature Service, Specifications for, ASTM A 182-56T; ASA G37.1- (Revision of ASTM A 182-55T; ASA G37.1-1956)
Sponsor: American Society for Testing Materials

SAFETY

American Standard Approved

Installation of Pulverized Coal Systems, Safety Code for, NFPA 60 A; ASA Z12.1-1957- (Revision of Z12.1-1946)
Sponsor: National Fire Protection Association

Withdrawal Being Considered

Inert Gas for Fire and Explosion Prevention, NFPA 12A, ASA Z12.10-1943
Sponsor: National Fire Protection Association

TEXTILES

In Board of Review

Definitions of Terms Relating to Textile Materials, ASTM D 123-55; ASA L14.12-
Fineness of Wool, Method of Test for, ASTM D 419-55T; ASA L14.26-
Fineness of Wool Tops, Method of Test for, ASTM D 472-56; ASA L14.29-
Fiber Length of Wool Tops, Test for, ASTM D 519-55T; ASA L14.32-
Sponsors: American Association of Textile Chemists and Colorists; American Society for Testing Materials

---

NEW PROJECT REQUESTED

What caused the initial temporary failure of polio vaccine?—a general conference of drug and filter manufacturers, public health groups and others concerned met March 6 to discuss this question.

The group voted unanimously to set up national standards for filters used in processing polio vaccine as well as all other biologicals and sterile pharmaceuticals.

The lack of uniform national standards for filters caused the variations in the vaccine, the group heard prominent drug manufacturers explain. The manufacturers had no standard set of performance requirements which would enable them to judge whether the filter would strain the active virus from the liquid.

The group agreed that American Standards are needed to test the performance and consistency of filters, so that all who work in the processing of sterile pharmaceuticals and the sterilization of biologicals will be assured that there can be no failure.

The American Drug Manufacturers Association which proposed the project to the American Standards Association was elected sponsor by the group.

Among those attending the conference were representatives of the American Pharmaceutical Association, National Formulary, F.R. Hormann and Company, Millepore Filter Company, National Institute of Health, Industrial Filter and Pump Manufacturing Company, Eaton-Dikeman Company, Niagara Filters, American Machine and Metals, Inc, American Drug Manufacturers Association, Commercial Filters Corporation, the United States Pharmacopeia and the American Chemical Society.

WHAT'S NEW ON AMERICAN STANDARDS PROJECTS

Screw Threads, B1—
Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers.

A draft standard providing dimensional tables for external and internal interference-fit (Class 5) threads is now being circulated for comment. Copies of the draft may be obtained without charge by addressing Frank Philippbar, Standards Department, The American Society of Mechanical Engineers, 29 West 39th Street, New York, N. Y. Comments received will be considered by the committee in preparing a final draft of this proposed standard.

Code for Pressure Piping, B31—
Sponsor: American Society of Mechanical Engineers.

The following interpretations of the American Standard Code for Pressure Piping, B31.1-1955, have been submitted by the sponsor for publication as interim actions of Sectional Committee B31 pending revision of the Code. They may be used in specifications or otherwise as representing the considered opinion of the committee. They will not constitute part of the Code, however, until formal action has been taken by ASME, as sponsor, and by ASA on approval of a revised edition.

CASE No. 24

Paragraph 824.23: Delete the words "and hardenability" in the third sentence.

"Alloy steels having weldability characteristics demonstrated to be similar to these carbon steels shall be welded, preheated, and stress relieved as prescribed herein for such carbon steels."

Paragraph 831.22: ASTM Specification A 354 Quenched and Tempered Alloy Steel Bolts and Studs with Suitable Nuts is approved as an additional material where ASTM A 193 is now listed.

ASTM Specification A 325 Quenched and Tempered Steel Bolts and Studs with Suitable Nuts and Plain Hardened Washers is approved as an additional material where ASTM A 261 is now listed.

Paragraph 841.16 (f): Change the word "moisture" to "water" in the second and the last sentences.

Paragraph 841.262: Delete the present wording and substitute the following new requirements:

"Electrical test leads may be attached directly on to the pipe by the thermit welding process using aluminum powder and copper oxide provided the charge is limited to No. 15 (15 gram) cartridges and the size of electrical conductor restricted to No. 6 AWG or smaller. Where the application involves the attachment of a larger wire, use a multistrand conductor and rearrange the strands into groups no larger than No. 6 AWG and attach each group to the pipe separately, using a No. 15 (15 gram) cartridge of powder. Attaching electrical test leads directly onto the pipe by other methods of brazing is prohibited."

Paragraph 845.21: Change the word "are" to "include" in the first sentence.

"Suitable types of protective devices tc prevent overpressuring of such facilities include:"

Paragraph 845:32. Change the word "are" to "include" in the second paragraph.

"Suitable types of protective devices to prevent overpressuring of a high-pressure distribution system include:"

Paragraph 845.42: Change the word "are" to "include" in the second paragraph.

"Suitable types of protective devices to prevent overpressuring of low-pressure distribution systems include:"

Paragraph 845.62: Delete the last sentence and substitute new wording. Paragraph will read:

"The discharge stacks, vents, or outlet parts of all pressure-relief devices shall be located where gas can be discharged into the atmosphere without undue hazard. Consideration should be given to all exposures in the immediate vicinity. Where required to protect devices, the discharge stacks, or vents, shall be protected with rain caps to preclude the entry of water."

Paragraph 849.1 (a): Delete the present wording entirely and substitute the following:

"(a) Vaults and pits shall be designed and constructed in accordance with good structural-engineering practice to meet the loads which may be imposed upon them."

CASE No. 25

Inquiry: Paragraph 841.432 literally interpreted could imply a degree of perfection not attainable with even the most modern equipment. What constitutes compliance with this requirement?

Reply: It is the opinion of the committee that the practical limitations of modern equipment shall be given proper consideration. This section requires the exercise of responsible and experienced judgment rather than numerical precision.

Pallets, MH1 (formerly B69)—
Sponsors: Society of Industrial Packaging and Materials Handling Engineers; American Society of Mechanical Engineers.

The designation of this committee has been changed from its earlier designation, B69, to MH1, as part of the new series of Materials Handling projects.

Before going ahead on development of standards for pallets, the sectional committee named a testing subcommittee to carry on research on methods of testing pallets. The preliminary results of the subcommittee's work have now been compiled and circulated to the sectional committee as well as to the testing subcommittee.

The report gives results of research on a new method of pallet testing, using a revolving drum and "constant reproducible accelerated abuse" similar to the method for shipping containers outlined in ASTM D 782-47. The research to determine the results of using this method for pallets was carried out for the testing subcommittee by the U.S. Naval Supply and Development Facility at Bayonne, N. J. The Supply Engineering Division of the Facility has been doing research and development work on pallets for the Armed Services since 1946. The work was done in close cooperation

with ASTM and in accordance with requirements of the sectional committee and of the Bureau of Supplies and Accounts Research and Development Authorization SE52-3, Pallet Investigation.

In its conclusions, the testing subcommittee recommended establishment of performance standards to help in readily determining the suitability of pallets. Such standards would make it possible to evaluate proposed improvements in pallet design, fastenings, or materials by simple tests against established performance standards.

Office Standards, X2—

Sponsor: National Office Management Association

A standard is now being developed for the essential connections and characteristics of a system that would make it possible for a person sitting in his office to dial through an intercommunication system, connect with a central office at some distance, and dictate his letters to an office-type dictating machine which he could control by dialing certain standard signals. The system would operate much the same as a telephone answering service.

The proposed standard being developed by a task group of Sectional Committee X2 is tentatively titled "Remote Dictation Through an Intercommunication Switching System." It outlines the essential functions of the system and provides for the standard connections between the intercommunication switching system and the office-type dictation equipment. For example, standard control signals might be as follows: When the person subscribing to the service would dial "1" it would start or stop the dictating machine; dial "2" would make it possible to correct the dictation; dial "3" would play back the dictation; dial "4" would indicate the end of the message; by hanging up, he would disconnect the machine.

Lloyd R. Jones, Dictaphone Corporation, is chairman of the Office-Type Dictating Equipment Task Group that is developing this proposed standard.

Standards Outlook

by LEO B. MOORE

Mr Moore is Assistant Professor of Industrial Management of Massachusetts Institute of Technology where he teaches a full-term course in industrial standardization.

The Standards Pattern

John Dewey is given credit for originally conceiving the notion of a systematic procedure in decision-making. Today his step-by-step pattern has such universal application that it is generally referred to as the engineering approach and its chief merit is found in the sure guidance it provides to group behavior. As a teaching device, we find this idea applied to the standardization process proves helpful in visualizing and encompassing the activity.

For general consideration, the words that describe this process are briefly: I—The Situation, II—The Problems, III—Possible Solutions, IV—Preferred Solution, V—Plan of Action. This means that first we consider the total situation before us, and then out of this review we determine the problem areas that must be solved. Then we establish a variety of courses of action for each problem. Our next step involves the establishment and application of criteria to determine the best course of action at the moment, with regard to each problem. Finally, we establish a plan to implement the decisions that we have reached, including some means of reporting progress and effectiveness.

The application of these ideas to the standards process might result in:

I. Recognize the need for the standard
Consider the total situation, defining and delineating its extent and character. Establish the facts, conditions, and difficulties that are a part of this situation. Determine the needs of this situation in terms of standardization and visualize the benefit of such action.

II. Discover the problems involved
Specify the issues that arise from the situation, in terms of standards aims, objectives, and policies that apply. Assess the standards requirements of judgment, measurement, or specification. Spell out these problems and assign priority.

III. Array the possible courses of action
Evolve several solutions to each problem, refraining from any judgment of their merits. Consider every standards technique. Encourage the contribution of all concerned.

IV. Select the preferred solution
Evaluate the possibilities, employing such criteria of economics, time, and effort as are pertinent. Continue the evaluation, making necessary changes. Acquire substantial agreement by all concerned to the final action.

V. Encourage the use of the standard
Seek the application of the standard wherever beneficial through its promulgation and publication. Make provisions for follow-through, including a review of its use. Establish a means for its evaluation in use and record any change in its effectiveness.

NOW! Make use of all American Standards for Office Management

✶ *Save on purchasing* ✶ *Improve efficiency of office operations*

Check these American Standards, X2
sponsored by the National Office Management Association, for dimensions, performance, safety:

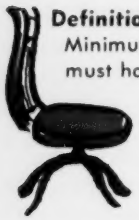
Dimensions of Desks and Tables for General Office Use, X2.1.1-1951. A range of over-all dimensions to permit uniformity in arrangement while allowing variations for functional requirements.

Provisions for Installation of Telephone Equipment on Desks, X2.1.2-1952. Uniform features in structural design for mounting telephone apparatus on desks and for concealing wiring.

Reflectances of Furniture for General Office Use, X2.1.3-1954 (NOMA N1.3-1954). Standard reflectances contribute to better seeing and better office performance. Here are favorable brightness patterns without impractical maintenance conditions.

Operating Voltage Range of Office Dictating Machines, X2.5.16-1954. To increase uniformity of equipment and avoid costly over-design.

Size Designation for Index Cards and Record-Keeping Cards, X2.4.1-1951. How to designate size of cards.



Definition of a Posture Chair, X2.1.4-1954. Minimum features that an office chair must have in order to be termed "posture."

Basic Sheet Sizes and Standard Stock Sizes for Bond Papers and Index Bristols, X2.2.1-1955 (NOMA N2.1-1955). To help you select sizes normally available.

Maximum Electrical Leakage of Dictating Machines, X2.5.17-1954. To prevent electrical shock.

Noncarbonized, Single-Ply, Adding Machine Paper Rolls, X2.4.2-1954. Includes roll widths; feet per roll; paper substance and quality, thickness, finish, color, brightness, opacity, tearing and bursting strength; diameter of rolls.

Template and Method of Attaching Dictating Machine Secretarial Hand Controls to Typewriters, X2.5.18-1954. For greater interchangeability.

Ring, Memo, and Post Binder Sheet Sizes and Ring and Post Data, X2.4.3-1956 (NOMA N4.3-1954). Data on sheet sizes and rings and posts for binders most widely used. Being considered as the basis for a Federal Standard.

25 cents per copy ***complete set $2.50***

Send check with order to avoid handling charge

Order from—

AMERICAN STANDARDS ASSOCIATION
70 East 45 Street, New York 17, N. Y.